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INTRODUCTION.

This REVIEW is based on reports for April, 1891, from 2,372 regular and voluntary observers. These reports are classified as follows: 171 reports from Signal Service stations; 118 reports from United States Army post surgeons; 1,524 monthly reports from state weather service and voluntary observers; 33 reports from Canadian stations; 182 reports through the Central Pacific Railway Company; 344 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Ser-

vice;" monthly reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa Weather and Crop Service, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, North and South Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, and Wisconsin, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR APRIL, 1891.

The month was warmer than usual, except along the Pacific coast, and from the middle Pacific coast east-southeast over Florida. At Boston and Newburyport, Mass., in the Red River of the North Valley, and at Wellington, Kans., the mean temperature was the highest, and at Key West, Fla., and Grand Coteau, La., it was the lowest ever reported for April. The highest temperature reported by a regular station of the Signal Service was 102°, at Yuma, Ariz., and by a voluntary observer, 112°, at Volcano Springs, Cal. At stations in the Ohio Valley and Tennessee, the Lake region, the Missouri and Red River of the North valleys, and at Fort Stanton, N. Mex., and Port Angeles, Wash., the maximum temperature was as high or higher than previously reported for April. The lowest temperature reported by a regular station of the Signal Service was 6°, at Saint Vincent, Minn., Fort Washakie, Wyo., and Denver, Colo., and by a voluntary observer, -35°, at Breckenridge, Colo. At Charlotte, N. C., Jacksonville, Key West, and Pensacola, Fla., Mobile, Ala., Palestine, Tex., Fort Smith, Ark., Montrose, Colo., San Francisco, Cal., and Port Angeles, Wash., the minimum temperature was as low or lower than previously reported for April. Over the Florida Peninsula the coldest weather ever known for the season prevailed on the 7th. Killing frost injured fruit and tender vegetation in the Gulf and south Atlantic states, and in Florida as far south as Lee county and Jupiter Inlet, from the 3d to 7th. Killing frost occurred in east Maryland on the 21st and on the New Jersey coast on the 26th.

The precipitation was generally deficient east of the Mississippi River and south of the Lake region, over the Rocky Mountain and plateau regions, and on the Pacific coast, except in west Washington and at San Francisco, Cal.; elsewhere the precipitation was generally in excess of the April average. The greatest excess in precipitation occurred in extreme northwest Washington, where it exceeded 4.00 inches, and the most marked deficiency was noted at Hatteras, N. C., where it was 4.20 inches, and from the lower Ohio valley southward to the middle Gulf coast, where it was more than 2.00 inches. At stations on the Washington coast and at Palestine, Tex., and Lawrence, Kans., the monthly precipitation was the heaviest, and at Wellsborough, Pa., Cleveland, Ohio, Nashville, Tenn.,

New Orleans and Grand Coteau, La., Fort Stanton, N. Mex., El Paso, Tex., and Keeler, Cal., it was the least ever reported for April. Monthly snowfall to exceed 10.0 inches was reported in the interior of New England, northeast and southeast New York, at mountain stations in south-central Pennsylvania and extreme west Virginia, in the mountains of Colorado, in central and west-central Nevada, along the line of the Central Pacific Railway crossing the summit of the Sierra Nevada Mountains in California, and at Marquette, Mich.

The severest general storm of the month prevailed along the middle Atlantic and New England coasts on the 2d and 3d, causing damage to shipping and seaside property. Destructive local storms were reported as follows: 8th, at Garza, Tex., buildings damaged to the extent of about \$500; near Columbia, Mo., a man was killed by lightning. 9th, damage by hail at Springfield, Mo.; buildings struck by lightning at Monticello, Ill., and Milwaukee, Wis. 11th, in York Co., Pa., and Carroll Co., Md. 12th, damage in Cooke and Grayson counties, Tex., by hail, wind, and rain. 15th, tornado passed over Hansford, Tex., killing 2 persons and damaging property to the value of about \$25,000; 2 persons were also reported killed at Claude, Tex. 16th, a man killed by lightning near Savannah, Ga., and a man killed by lightning near Washington, N. C. 17th, remarkably heavy rainfall at Gallinas, Tex.; a boy killed by lightning at Trenton, Mo.; a destructive wind and hail storm at Marion, Ind.; 2 barns struck by lightning at Olney, Ill.; 2 buildings struck by lightning at Tarpon Springs, Fla. 18th, a barn struck by lightning near Dyberry, Pa.; a man reported killed by lightning near Salladasburgh, Pa.; damage by lightning in Harford and Baltimore counties, Md.; 5 houses and 2 horses struck by lightning at Orange, Mass.; house and trees struck by lightning at Crossville, Tenn. 19th, stock killed by lightning near Tullahoma, Tenn. 20th, heavy wind and rain storm at Corpus Christi, Tex., 1 boy killed; severe storms in Camp Co. and at Del Rio, Tex.; damage by hail at Lawrenceburgh, Tenn. 21st, 1 man and 2 horses killed by lightning in Knox Co., Tenn. 23d, a man reported killed by lightning at Norwich, Conn. 30th, storm caused damage at Tiffin, Ohio; a man reported killed by lightning near Stockwell, Ind.

The lower Mississippi river remained above the danger-line

at Vicksburg, Miss., and New Orleans, La., throughout the month. It was above the danger-line at Cairo, Ill., until the 19th, and at Memphis, Tenn., until the 22d. On the 3d a break occurred in the levee about 2 miles below Longwood, Miss. On the 5th a break occurred in the newly constructed levee built to protect Gretna, La., from the overflow from the Ames Crevasse, flooding the rear portion of the town. On the 10th water from the Ames Crevasse broke through the rear protection levee on the Concession Plantation, 20 miles below New Orleans. At the close of the month high water prevailed in the upper Rio Grande river and in the streams of New Mexico, and at El Paso, Tex., the water was the highest ever known for the season. The water was also high in the Brazos River, Tex. Navigation opened at Oswego, N. Y., on the 4th, at Toledo, Ohio, on the 5th, at Sandusky, Ohio, on the 7th, at Erie, Pa., on the 11th, and at Buffalo, N. Y., on the 14th. On

the 19th the first boat of the season passed through the Straits of Mackinac. The first boat arrived at Sault de Ste. Marie, Mich., on the 27th. Navigation opened at Duluth, Minn., on the 30th. The first boat from Milwaukee, Wis., arrived at Green Bay, Wis., on the 13th. The first boat of the season left Port Huron, Mich., on the 19th, and the first boat of the season arrived at that port on the 20th. Navigation opened at La Crosse, Wis., on the 12th, and at Fort Sully, S. Dak., on the 26th.

Over a great part of the south Atlantic and east Gulf states dry weather impeded farming operations, and in Mississippi and Louisiana crops suffered from drought. At the close of the month forest fires were raging in the mountains near Cumberland, Md. Extensive forest fires prevailed near Blue Knob, Reading, and Ashland, Pa., and Egg Harbor City, May's Landing, and Tom's River, N. J.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for April, 1891, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars. The departure of the mean pressure for April, 1891, obtained from observations taken twice daily at the hours named, from that determined from hourly observations, varied at the stations named below, as follows:

Station.	Departure.	Station.	Departure.
Moorhead, Minn.....	+.001	Cleveland, Ohio.....	.000
Chicago, Ill.....	+.002	Saint Paul, Minn.....	.000
Duluth, Minn.....	+.003	Saint Louis, Mo.....	-.004
Atlanta, Ga.....	+.004	New Orleans, La.....	-.005
Pittsburg, Pa.....	+.006	Denver, Colo.....	-.006
Eastport, Me.....	+.007	Omaha, Nebr.....	-.007
Washington City.....	+.007	Abilene, Tex.....	-.007
Key West, Fla.....	+.007	Memphis, Tenn.....	-.008
Lynchburg, Va.....	+.009	Fort Assiniboine, Mont.....	-.009
Albany, N. Y.....	+.010	Santa Fe, N. Mex.....	-.010
New York City.....	+.011	Salt Lake City, Utah.....	-.010
Jacksonville, Fla.....	+.011	San Francisco, Cal.....	-.015
Boston, Mass.....	+.014	El Paso, Tex.....	-.019
Wilmington, N. C.....	+.016	Yuma, Ariz.....	-.025

The mean pressure was highest east of the Mississippi and south of the Ohio rivers, and along the middle and north California coasts, where it was 30.05 or above. The mean pressure was lowest over the Canadian Maritime Provinces, in the British Possessions north of Montana, and over the west part of the southern plateau, where it was below 29.90.

A comparison of the pressure chart for April, 1891, with that of the preceding month shows that there was a general decrease in mean pressure over the central, north, and extreme west parts of the country, while from the southern plateau eastward to the south Atlantic coast there was an increase in mean pressure. The greatest decrease in pressure occurred over the extreme northeast part of the country and in Manitoba, where it was .20 or more, and the most marked increase in pressure was noted on the middle and west Gulf coasts, where it amounted to .05. In the preceding month the mean pressure was highest over the northeastern and north-central parts of the country and on the north Pacific coast, where it was above 30.10, and the mean pressure was lowest over the southern plateau, where it was below 29.95.

The mean pressure was above the normal, except in districts lying north of the 45th parallel, and over the extreme southwest part of the country. The greatest departure above the normal pressure occurred from the Carolinas and Virginia westward to the middle-eastern slope of the Rocky Mountains and thence southeasterly to the west Gulf coast, where it was more than .05, and the most marked departure below the normal pressure was noted at stations on the coast of the Gulf of Saint Lawrence and on the north Pacific coast, where it was .05 or more.

The monthly barometric range at each station of the Signal Service is given in the table of Signal Service data.

AREAS OF HIGH PRESSURE.

I.—This high area was central north of North Dakota and Montana from the 1st to the 3d. It then moved directly south to Texas, where it was central on the 5th; it then moved eastward to the coast of Florida, reaching that point on the 7th. The temperature fell from 12° to 22° on the 1st from the Dakotas to Kansas; on the 2d the cold wave extended over the Lake region and the Ohio Valley; continued over these districts on the 3d, and extended to the Gulf States. A further fall in temperature occurred in the Gulf and south Atlantic states on the 4th, and in the last-named states on the 5th. Freezing weather occurred in Tennessee during the nights of the 4-5th; light frosts occurred in the Gulf States on the night of the 4th; and killing frost during the night of the 5th, and as far south as Titusville and Jupiter, on the eastern coast of Florida, during the night of the 6th.

II.—Was central near Lake Superior during the 6th, 7th, and 8th, on the south New England coast on the 9th, and moved thence northeastward to Nova Scotia. The temperature falls were slight and limited in area. Under its influence fair weather prevailed in the Lake region from the 6th until the 9th and continued in New England until the 10th, with temperature differing very slightly from the normal.

III.—This area of high pressure was central in Colorado on the 10th, in Arkansas on the 11th, moved northeastward to Virginia during the 12th, and disappeared off the North Carolina coast on the 14th. It caused but slight falls in temperature, and the southern course pursued by the centre, in connection with the advance of low area No. III, caused very decided rises in temperature in the central portions of the United States during the 12th and 13th and in the Atlantic coast districts during the 14th.

IV.—This high was central in Montana on the 12th and passed along the northern boundary of the United States and reached the Gulf of Saint Lawrence on the 15th. There was a fall of from 10° to 15° in temperature in advance of the centre in the extreme northern districts. A maximum velocity of 32 miles from northeast was reported from Eastport, Me., during the night of the 14th.

V.—A rise of four-tenths of an inch in pressure over the lower lake region on the 15th was the commencement of a high area that passed from that point to the south New England coast and thence down the coast to South Carolina, where it was central on the 18th. There was a slight fall in temperature in the middle and south Atlantic states on the 16th, but as the centre of the high moved to the south there was a general and decided rise in temperature in New England and the middle Atlantic states during the 17th and 18th.

VI.—The path followed by this high was from Montana to Kansas, thence across the Lake region to Rhode Island, and from that point southward to the South Carolina coast. The temperature fell from 10° to 15° on the 20th and 21st in New England and the middle Atlantic states, but rose about the same amount on the 22d.

VII.—The path of this area is traced from the coast of California, where it was central on the 21st, to Colorado, where it remained nearly stationary from the night of the 21st until the 22d. During the night of the latter date it moved to Lake Superior, thence southward to northern Illinois, eastward to Lake Erie, and on the night of the 27th was over South Carolina. A maximum wind velocity of 52 miles per hour was reported from Cape Hatteras during the night of the 25th. There was a general fall in temperature in the districts east of the Mississippi River on the 23d, the greatest fall being from 25° to 30° in New England. The fall continued in the lower lake region and the middle and south Atlantic states during the 24th. In New England there were but slight changes on this date, but there was a further fall of 10° the next day.

VIII.—The track of this high is traced from the Pacific coast eastward to Wyoming from the 24th to the 27th. On the 28th the centre was in Texas, moving during the day to Indiana. On the morning of the 30th it was on the South Carolina coast. The temperature fell 20° to 30° in Montana on the 24th, and about the same amount in the Missouri Valley on the 26th. Falls of equal amount were felt from the Lake region to New England on the 27th and 28th. Northwest gales prevailed in the Lake region on the 27th and 28th, and on the Atlantic coast on the 28th and 29th.

IX.—This area was over the north Pacific coast from the 28th until the 30th of the month. Its only effect up to the end of the month had been to clear the weather in Washington and Oregon.

AREAS OF LOW PRESSURE.

I.—On the morning of the 1st a trough of low barometer extended from the upper lakes southwestward to Texas, with centres of low pressure over Lake Superior and northern Texas. The northern centre disappeared during the day and the area of low pressure in Texas moved northeastward to Indiana, thence to the Virginia coast, and passed up the Atlantic coast to Nova Scotia. Rain fell on the 1st in the Gulf States, Missouri, Kansas, and Colorado, and snow in the northwestern states. The area of precipitation extended during the 2d over the Lake region, Ohio Valley, middle Atlantic states, and southern New England, with easterly gales from Cape Hatteras to Cape Cod. Snow, with high northwest winds, prevailed over the Lake region on the 3d, the snow area extending southward to the Ohio Valley. The winds on the Atlantic coast south of Portland, Me., shifted to the northwest during the night of the 2d. The storm was very severe on the New England coast. The maximum velocities from the east ranged from 60 to 72 miles per hour. At Boston, Mass., the barometer fell one inch between 8 p. m. of the 2d and 8 a. m. of the 3d. On the northern coast of Maine the wind continued from the northeastward until the night of the 3d, a maximum velocity of 60 miles being reported from Eastport. Heavy snow fell in New England during the night of the 2d.

II.—This storm was central on the coast of Washington on the 6th, in Montana on the 7th, in Nebraska on the 8th, in Iowa on the 9th, and over Lake Superior on the 10th. Its course from that point was eastward to the Gulf of Saint Lawrence, where it was central on the 13th. Rain fell on the north Pacific coast on the 6th and 7th, rain or snow in the Dakotas on the 8th, and in the upper Mississippi valley and upper lake region on the 9th. The area of precipitation extended over the lower lakes and the Ohio Valley on the 10th, and over New England and the middle Atlantic states on the 11th. High easterly winds prevailed on the upper lakes on the 9th, on the lower lakes on the 10th, and velocities of 25 to 35 miles per hour were reported from the south New England coast on

the 11th. Owing to the presence of two areas of high barometer, one central in the extreme northern and the other in the extreme southern portion of the United States, the temperature changes in advance of the storm were irregular. The greatest changes occurred in the Ohio Valley, where the temperature was 10° to 16° above the normal on the 9th, and over the lower lake region, where it was 10° to 18° above the normal on the 10th.

III.—This low area was central north of Montana on the 10th. Its general course was southeastward to northern Texas, where it was central on the 13th. From that point its course was northeastward to the lower lakes and thence to Nova Scotia, where it appeared central on the 15th. Showers were reported from Iowa and Missouri on the 12th, and from the upper Mississippi valley and upper lakes on the 13th. On the 14th and 15th the rain area included the Lake region, extending during the latter date to New England. Brisk and high winds prevailed near the Lake region on the 13th and 14th. Velocities of 30 to 40 miles per hour were reported from the Maine coast on the 15th. The temperature rose 10° to 18° in the upper Mississippi and Missouri valleys on the 11th, and generally east of the Mississippi River on the 12th. On the 13th the temperature was 10° to 20° above the normal, and 10° to 15° above in southern New England and the middle Atlantic states on the 14th.

IV.—On the morning of the 19th this low area was central north of Montana. It moved southeastward to South Dakota, and thence to the upper lake region, from which point it moved eastward to the Gulf of Saint Lawrence. Rain fell in the upper Mississippi and Missouri valleys on the 16th; during the 17th the rain area extended southward to Texas and eastward to include the upper lakes; high southwest shifting to northwest winds prevailed in the upper Mississippi and Missouri valleys during these two dates. The highest velocity reported from a Lake station during the passage of the storm was 26 miles per hour at Toledo, Ohio. On the 18th the rain area included the middle Atlantic states, lower lake region, and the Ohio Valley and Tennessee, and during the night extended to New England. There was a general rise in temperature in advance of the storm; the greatest rise being 20° in the Lake region and Ohio Valley on the 17th, and a further rise of 10° on the 18th. The temperature in New England and the middle Atlantic states was from 15° to 20° above the normal on the morning of the 19th.

V.—This low area was central in Colorado on the night of the 17th. It moved during the night to Wyoming, and thence southward to southern New Mexico, where after remaining nearly stationary for two days its energy was dissipated. Rain fell in the lower Mississippi valley on the 16th, 17th, 18th, and 19th. Heavy gales prevailed on the Texan coast during the 19th and 20th, the highest velocity reported being 60 miles per hour from the nw. at Corpus Christi.

VI.—This low area appeared central north of Montana on the 18th. During the next day it remained nearly stationary. It moved eastward during the 20th and 21st, and on the 22d was north of the Lake region. It was central on the coast of Maine on the morning of the 23d, and during the day moved northeastward to the Gulf of Saint Lawrence. From the 18th until the 20th it was separated from low area No. V by a low ridge of higher pressure, being in fact one centre of an extensive area of low pressure, the other centre being area No. V, central in the southern part of the United States; after the disappearance of this area, No. VI increased in energy and began its movement to the eastward. Under the joint action of these two lows rain fell in the districts west of the Mississippi on the 19th, 20th, and 21st. The rain area in advance of No. VI extended to the Lake region on the 21st and to the Ohio Valley and middle Atlantic states during the 22d. The rain continued in the lower lake region, Ohio Valley, and middle Atlantic states during the 23d, the area of precipitation extending to New England and the south Atlantic states. Wind velocities ranging from 20 to 40 miles per hour were re-

ported from the Lake region, and a maximum velocity of 52 miles from the south New England coast on the 22d. The winds continued high on the New England coast on the 23d. The rise in temperature in advance of the centre was about 10°; it rose 10° to 20° above the normal in New England and the middle Atlantic states on the 22d.

VII.—This storm was central north of Montana on the 21st; it followed very closely the track of No. VI in its eastward movement to the Gulf of Saint Lawrence, where it was central on the 28th. The only precipitation reported was in the upper lake region, where local rains accompanied the fall in temperature after the centre had passed to the eastward. In connection with the absence of precipitation is noted the continued high wind velocities that accompanied the storm. On the 25th the wind in the Missouri Valley was from the south, with velocities of 25 to 35 miles per hour, and the temperature rose 15° to 25° above the normal. In Manitoba it was 25° to 38° above the average for the last decade of the month. The high winds continued in the Western States until the 27th, and on

this day the velocities reported for the Lake region ranged from 20 to 40 miles per hour. The greatest change in temperature was a rise of 30° in the upper lake region on the 26th and 30° in New England on the 27th. There was a very marked difference in temperature between the east and west sides of the storm. The evening temperature at the centre remained from 75° to 85° (or 20° to 30° above the normal) until it reached New England where it was about 10° lower.

VIII.—This storm started and followed in nearly the same path as the two preceding ones; it was characterized, as was No. VII, by an almost total absence of precipitation and continued high winds and warm weather. Showers were reported from the southern portion of the Lake region and from the Ohio Valley on the 30th, and high winds from the upper Mississippi and Missouri valleys on the 28th and 29th, from the Lake region on the 29th and 30th, and from the Atlantic coast stations on the 30th. The greatest rise in temperature was 36° over the Lake Superior region on the 29th. The rise in temperature on the Atlantic coast was from 10° to 20°.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.			Duration.	Velocity per hour.	Maximum pressure change and maximum abnormal temperature change in twelve hours and maximum wind velocity.											
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.				Station.	Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date.		
High areas.						Days.	Miles.			Inch.										
I.....	1	52	109	37	80	6.0	23		Port Arthur, Ont.....	.30		Nashville, Tenn.....	18	2	Chicago, Ill.....	n.	40			
II.....	6	50	85	43	67	5.0	19		Sydney, C. B. I.....	.40	23	Lynchburgh, Va.....	9	10	Block Island, R. I.....	nw.	34			
III.....	10	38	109	33	75	5.0	19		Valentine, Nebr.....	.24	10	Springfield, Ill.....	12	10	Valentine, Nebr.....	nw.	45			
IV.....	12	49	107	48	64	2.5	33		Saint Vincent, Minn.....	.48	13	Concordia, Kans.....	26	13	Fort Sully, S. Dak.....	nw.	35			
V.....	13	43	85	33	77	3.0	22		Buffalo, N. Y.....	.32	15	Oswego, N. Y.....	8	13	Kitty Hawk, N. C.....	sw.	34			
VI.....	17	51	110	33	78	5.5	27		Port Sully, S. Dak.....	.40	17	Port Huron, Mich.....	17	19	Valentine, Nebr.....	nw.	35			
VII.....	21	42	124	34	79	0.0	33		Rockliffe, Ont.....	.28	23	Rockliffe, Ont.....	16	23	Northfield, Vt.....	nw.	36			
VIII.....	24	41	124	32	80	5.5	32		Denver, Colo.....	.56	26	Huron, S. Dak.....	32	26	Cheyenne, Wyo.....	nw.	44			
Mean.....						4.8	26			.36				17				39		
Low areas.										Fall.										
I.....	1	38	99	48	61	4.0	26		Boston, Mass.....	1.02	3	Jacksonville, Fla.....	11	3	Boston, Mass.....	se.	60			
II.....	6	47	125	49	64	7.0	23		Eureka, Cal.....	.40	9	Indianapolis, Ind.....	16	9	Fort Canby, Wash.....	se.	60			
III.....	10	52	116	43	64	5.0	35		Pueblo, Colo.....	.30	11	Grand Haven, Mich.....	17	13	Eastport, Me.....	se.	38			
IV.....	13	52	113	47	59	3.5	35		Saint Paul, Minn.....	.38	16	Pittsburg, Pa.....	22	17	Sioux City, Iowa.....	s.	52			
V.....	17	38	109	33	103	3.0	17		Santa Fé, N. Mex.....	.15	20	Palestine, Tex.....	14	20	Corpus Christi, Tex.....	nw.	60			
VI.....	18	52	113	48	60	6.0	22		Portland, Me.....	.34	22	Sandusky, Ohio.....	21	22	Block Island, R. I.....	sw.	52			
VII.....	21	33	116	48	63	7.0	17		Prince Albert, N. W. T.....	.50	22	Helena, Mont.....	22	22	Fort Sully, S. Dak.....	s.	46			
VIII.....	27	53	113	47	77	3.0	25		Saint Vincent, Minn.....	.52	28	Duluth, Minn.....	26	29	Saint Paul, Minn.....	se.	38			
Mean.....						4.8	25			.45				19				51		

NORTH ATLANTIC STORMS FOR APRIL, 1891 (pressure in inches and millimetres; wind-force by Beaufort scale).

The paths of the depressions that appeared over the west part of the north Atlantic Ocean during April, 1891, are shown on Chart I. These paths have been determined from international observations by captains of ocean steamships and sailing vessels received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

A notable feature of April, 1891, was the unusual number of storms which appeared in the middle latitudes, several of which moved eastward to mid-ocean south of the trans-Atlantic steamship routes, and at least two of these passed eastward over the Bay of Biscay. Of the storms traced but one was severely felt over the ocean; this storm advanced northeast along the Atlantic coast of the United States during the 2d and 3d, attended by severe gales which caused damage to shipping and seaside property.

The month opened with low pressure along the trans-Atlantic steamship routes. A storm with pressure below 29.40 (747) and fresh to strong gales was central east of Newfoundland, having advanced from south of Newfoundland where it was central March 31st; a storm of moderate energy was central northeast of Bermuda, where the pressure fell to 29.80 (757) at 4 p. m., with a sw. to w. gale; the pressure was low over mid-ocean; and a storm with pressure below 29.50 (749) was

central west of the British Isles. On the 2d the storm east of Newfoundland on the 1st had moved ne. of the Grand Banks, with pressure below 29.10 (739); the storm near Bermuda had moved e. about 10°; and the storm over the eastern part of the ocean had advanced to the British Isles, with pressure 29.40 (747) in Ireland. The evening of the 2d a storm of considerable strength which had advanced from the Ohio Valley was central near Cape Hatteras. By the morning of the 3d the Cape Hatteras storm had moved to the s. New England coast, with pressure below 29.40 (747); the Bermuda storm had advanced to se. of the Grand Banks; the pressure continued low over mid-ocean; and the barometer fell to 29.20 (742) at Valentia, Ireland. The morning of the 4th the Atlantic coast storm had advanced to New Brunswick, with pressure below 29.30 (744) and fresh to strong gales; the Bermuda storm was central w. of the Azores; and the pressure was below 29.30 (744) west of Ireland. During the 5th and 6th the storm central over New Brunswick on the 4th moved northeastward over the Gulf of Saint Lawrence and north Newfoundland and disappeared north of the region of observation, and the pressure was low and a storm was apparently central near the Azores.

On the 5th the pressure fell below 29.50 (749) nw. of Ireland. On the 6th the pressure was low over the British Isles, and a

storm was apparently central w. of the Bay of Biscay. On the 7th a storm, with pressure below 29.40 (747) and strong gales, appeared s. of Newfoundland, whence it moved ne. and disappeared north of the region of observation after the 8th, and a storm had apparently passed eastward from the British Isles and the Bay of Biscay over the continent of Europe. During the 9th and 10th a storm passed eastward over mid-ocean in high latitudes. On the 11th a storm, with pressure about 29.50 (749) and fresh gales, was central about midway between the Azores and the Grand Banks. By the 12th this storm had apparently advanced n. of e. toward the British Isles.

During the 13th and 14th a storm moved over the north Gulf of Saint Lawrence and the Straits of Belle Isle, and disappeared north of the region of observation. On the 17th a storm, with pressure below 29.70 (754), snow, and sleet was central se. of Newfoundland, whence it moved slowly ene., with fresh to strong gales, and disappeared over mid-ocean after the 19th. On the 20th 2 storms of considerable energy were central e. of the Grand Banks, one of which had advanced from the Gulf of Saint Lawrence and the other was apparently a secondary development to the storm which had moved ene. from the Grand Banks from the 17th to 19th. The morning of the 21st the two storms referred to had changed their position but slightly; by the 22d they had apparently united and a storm of marked strength was central e. of the Banks of Newfoundland. On this date a storm was apparently central about midway between the Bay of Biscay and the Azores, whence it moved eastward and disappeared after the 23d.

On the 23d the storm central e. of the Grand Banks on the 22d was central nw. of the Azores, with pressure below 29.50 (749) and strong gales; by the 24th this storm had moved ne. of the Azores; on the 25th it was apparently central about midway between the Azores and the Bay of Biscay; on the 26th and 27th it was central sw. of Ireland; and on the 28th it had apparently moved s. of the British Isles over the continent of Europe. On the 24th a storm, with pressure below 29.40 (747), was central n. of Newfoundland, having advanced from the Gulf of Saint Lawrence, after which it disappeared n. of the region of observation. On the 25th a storm, with pressure below 29.30 (744), was central s. of Newfoundland, whence it moved ne. and disappeared n. of the region of observation after the 27th. On the 25th a storm of moderate strength was central off the e. Florida coast, whence it moved northeastward, and at the close of the month was central e. of Nova Scotia. From the 26th to the 30th the pressure continued low over mid-ocean. On the 29th the pressure fell to 29.40 (747) in the Hebrides Islands, and it continued low over the British Isles during the 30th.

OCEAN ICE IN APRIL.

The following table shows the southern and eastern limits of the region within which icebergs or field ice were reported for April during the last 9 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
April, 1883	40 49	52 06	April, 1883	48 00	43 00
April, 1884	41 26	48 46	April, 1884	45 25	43 34
April, 1885	41 40	49 50	April, 1885	44 10	39 41
April, 1886	40 51	46 39	April, 1886	47 43	30 11
April, 1887	40 02	50 04	April, 1887	48 00	38 18
April, 1888	41 33	50 00	April, 1888	47 40	49 00
April, 1889	43 57	50 20	April, 1889	47 16	43 11
April, 1890	40 00	49 40	April, 1890	47 26	35 42
April, 1891	40 01	48 24	April, 1891	45 33	43 32
Mean	41 13	49 32	Mean	46 48	40 41

* Isolated iceberg.

Ice was reported about 1° south and about 3° west of the average southern and eastern limits of Arctic ice for April. The southernmost ice reported was a square, flat berg, observed on the 13th, and the easternmost ice reported was an iceberg noted on the 20th, in the positions given in the table. Ice was most frequently encountered along the se. edge of the Banks of Newfoundland, but was reported westward to the Newfoundland coast. Large quantities of field ice in the Gulf of Saint Lawrence and on the Cape Breton, east Nova Scotia, and west Newfoundland coasts seriously interfered with navigation. Compared with the corresponding month of preceding years the Arctic ice reported for the current month about corresponded in quantity and distribution with the April average. The positions of Arctic ice reported for April, 1891, are shown on Chart I by ruled shading.

FOG IN APRIL.

The limits of fog-belts west of the 40th meridian, as reported by shipmasters, are shown on Chart I by dotted shading. In the vicinity of the Banks of Newfoundland fog was reported on 10 dates; between the 55th and 65th meridians on 6 dates; and west of the 65th meridian on 3 dates. Compared with the corresponding month of the last 3 years the dates of occurrence of fog near the Grand Banks was 7 less than the average; between the 55th and 65th meridians 6 less than the average; and west of the 65th meridian 9 less than the average. Fog was generally reported in the east quadrants of general storms which advanced eastward from the American continent. On the 4th, 11th, 12th, 14th to 19th, and 21st dense fog was reported at points along the New England, New York, and New Jersey coasts, its occurrence, as a rule, attending the approach of general storms whose influence extended off the coast.

TEMPERATURE OF THE AIR (expressed in degrees, Fahrenheit).

Many of the voluntary stations do not have standard thermometers or shelters.

The distribution of mean temperature over the United States and Canada for April, 1891, is exhibited on Chart II by dotted isotherms. In the table of Signal Service data the monthly mean temperature and the departure from the normal are given for regular stations of the Signal Service. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the departure is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Signal Service represents the mean of the maximum and minimum temperatures.

The mean temperature was highest in extreme southeast California, southwest Arizona, and south Florida, where it was above 70°, and the mean temperature was above 60° in the east and west Gulf states, in the Mississippi Valley north-

ward to the lower Ohio valley, over the southwest part of the southern plateau, and from south California over the San Joaquin and Sacramento valleys. The mean temperature was lowest in the lower Saint Lawrence valley, in extreme north Ontario, and at mountain stations in central Colorado, where it was below 35°, and the mean temperature was below 40° in northeast New England, the north part of the upper lake region, from south-central Wyoming to north-central New Mexico, in the northeast part of lower Idaho, and at stations on the Central Pacific Railway crossing the summit of the Sierra Nevada Mountains in California.

The mean temperature was above the normal north of a line traced from the south Atlantic coast northwestward to the extreme north Pacific coast; to the southward of this line the month was cooler than the average April. The greatest departure above the normal temperature occurred from the Red River of the North Valley north and northwest over the Brit-

ish Possessions, where it was more than 5, and the greatest departure below the normal temperature occurred over extreme south Florida, in southeast Texas, and in northwest California.

The morning of the 6th the coldest weather on record for the season occurred over north Florida and south Georgia, the minimum temperature at Savannah and Jacksonville, 30 and 34, respectively, being 3 below the lowest temperature previously recorded during the first decade of April. The condition of low temperature moved southward and extended over the entire Florida Peninsula by the 7th, producing the coldest weather ever known in that region for the season. From the 24th to 27th the warmest weather on record for the season occurred in Montana, the Dakotas, north Minnesota, and upper Michigan.

The mean temperature from January to April, inclusive, averaged about normal in the east Gulf states, the Rio Grande and Missouri valleys, and on the Pacific coast. In the extreme northwest the average excess in temperature for this period was about 4; in the Lake region about 3; in the New England and middle Atlantic states about 2; and in the south Atlantic states, the Ohio Valley and Tennessee, the upper Mississippi valley, and over the north plateau region about 1. The deficiency in temperature for this period averaged about 3 in the middle plateau region, about 2 in the southern plateau region, and about 1 at Key West Fla., in the west Gulf states, and on the eastern slope of the Rocky Mountains.

The highest mean temperature ever reported for April was noted at Boston, Mass., in 1891, when the mean temperature was 2.9 above the normal and 0.2 above the highest mean temperature previously reported for April, noted in 1889; at Newburyport, Mass., where the mean temperature was 3.5 above the normal, and the same as 1886; at Moorhead, Minn., where the mean temperature was 7.0 above the normal, and 1.3 above 1886; at Saint Vincent, Minn., where the mean temperature was 7.9 above the normal, and 0.6 above 1886; and at Wellington, Kans., where the mean temperature was 4.6 above the normal, and 1.2 above 1880; from North Dakota westward to the north Pacific coast in 1889, when the mean temperature was 4 to 6 above the normal; from the middle-eastern slope of the Rocky Mountains westward to the Pacific coast between the 39th and 45th parallels, in 1888, when the mean temperature was 4 to 12 above the normal in north California and Oregon, 5 to 8 above in the middle and southern plateau, and 3 to 6 above on the middle-eastern slope of the Rocky Mountains; from the upper Mississippi and lower Missouri valleys eastward over the Lake region and the middle Atlantic states and New England, save along the immediate middle Atlantic and south New England coasts, in 1878, when the mean temperature was 5 to 6 above the normal in the upper Mississippi and Ohio valleys, about 5 above in the middle Atlantic states and New England, and 6 to 10 above in the Lake region.

The lowest mean temperature ever reported for April occurred at Key West, Fla., in 1891, when the mean temperature was 2.8 below the normal and 0.9 below the lowest mean temperature previously reported for April, noted in 1889; at Grand Coteau, La., where the mean temperature was 1.7 below the normal, and 0.6 below 1884, and at Rio Grande City, Tex., where the mean temperature was 4.1 below the normal, and 2.1 below 1888; from the Mississippi River east and northeast over the middle Atlantic states and New England in 1874, when the mean temperature was 5 to 10 below the normal in the Mississippi and Ohio valleys, the Lake region, and the middle Atlantic states, and 5 to 8 below in New England.

DEVIATIONS FROM NORMAL TEMPERATURE.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for April for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for April, 1891; (4) the departure of the current month from the normal;

(5) and the extreme monthly mean for April, during the period of observation and the years of occurrence:

State and station.	County.	(1) Normal for the month of April.	(2) Length of record.	(3) Mean for April, 1891.	(4) Departure from normal.	(5) Extreme monthly mean for April.			
						Highest.	Year.	Lowest.	Year.
Arkansas.			Years						
Lead Hill.....	Boone.....	62.0	9	61.4	- 0.6	65.3	1888	56.7	1884
California.									
Sacramento.....	Sacramento..	59.2	35	54.4	- 4.8	63.3	1857	54.4	1891
Connecticut.									
Middletown.....	Middlesex...	45.6	24	48.9	+ 3.3	50.9	1865	38.3	1874
Florida.									
Merritt's Island..	Brevard.....	71.7	9	70.3	- 1.4	75.4	1883	67.0	1886
Georgia.									
Forayth.....	Monroe.....	65.0	17	66.5	+ 1.5	68.8	1888	61.0	1875
Illinois.									
Peoria.....	Peoria.....	52.5	35	56.1	+ 3.6	57.9	1878	40.6	1857
Riley.....	McHenry....	44.0	35	47.8	+ 3.8	52.2	1856	35.5	1874
Indiana.									
Vevay.....	Switzerland..	55.1	24	56.9	+ 1.8	60.5	1866	47.4	1874
Iowa.									
Cresco.....	Howard.....	43.2	19	46.7	+ 3.5	47.3	1878	37.5	1874
Monticello.....	Jones.....	48.3	37	50.0	+ 1.7	56.0	1855	38.0	1857
Logan.....	Harrison....	50.6	17	55.2	+ 4.6	56.2	1890	42.6	1874
Kansas.									
Lawrence.....	Douglas.....	54.6	23	57.0	+ 2.4	59.6	1876	47.7	1874
Wellington.....	Sumner.....	50.2	12	60.8	+ 10.6	60.8	1891	50.7	1884
Louisiana.									
Grand Coteau....	Saint Landry	69.7	8	68.0	- 1.7	70.9	1885	68.0	1891
Maine.									
Orono.....	Penobscot...	39.8	21	41.3	+ 1.5	45.1	1869	33.3	1874
Maryland.									
Cumberland.....	Allegany.....	48.8	32	54.2	+ 5.4	57.6	1881	43.2	1859
Massachusetts.									
Amherst.....	Hampshire...	45.4	55	48.0	+ 2.6	52.2	1839, '78	38.3	1874
Newburyport....	Essex.....	44.0	11	47.5	+ 3.5	47.5	1886, '91	41.4	1888
Somerset.....	Bristol.....	45.3	18	49.4	+ 4.1	51.8	1876	38.7	1874
Michigan.									
Kalamazoo.....	Kalamazoo...	46.9	14	49.8	+ 2.9	52.9	1878	42.0	1881
Thornville.....	Lapeer.....	45.6	14	48.3	+ 2.7	52.1	1878	42.3	1881, '88
Minnesota.									
Minneapolis.....	Hennepin...	43.5	25	47.8	+ 4.3	49.2	1886	36.6	1874
Montana.									
Fort Shaw.....	Lewis & Clarke	44.7	21	49.7	+ 5.0	51.2	1870	38.6	1882
New Hampshire.									
Hanover.....	Grafton.....	41.2	56	45.5	+ 4.3	46.9	1887	33.7	1874
New Jersey.									
Moorestown.....	Burlington..	49.3	27	51.9	+ 2.6	55.1	1865	42.3	1874
South Orange....	Essex.....	47.7	20	50.9	+ 3.2	52.9	1878	42.2	1874
New York.									
Cooperstown....	Otsego.....	40.8	37	44.0	+ 3.2	51.6	1878	33.6	1874
Palermo.....	Oswego.....	41.1	31	45.3	+ 4.2	50.0	1878	32.4	1874
North Carolina.									
Lenoir.....	Caldwell.....	55.7	18	57.6	+ 1.9	60.0	1887	42.6	1885
Ohio.									
N'th Lewisburgh.	Champaign..	51.0	59	53.0	+ 2.0	63.0	1888	39.0	1857
Wauseon.....	Fulton.....	46.4	21	49.6	+ 3.2	54.8	1878	38.6	1874
Oregon.									
Albany.....	Linn.....	51.6	13	50.8	- 0.8	55.4	1888	46.4	1882
Eola.....	Polk.....	49.5	20	48.4	- 1.1	54.8	1875	43.2	1872
Pennsylvania.									
Dyberry.....	Wayne.....	42.1	25	44.3	+ 2.2	49.7	1878	35.0	1874
Grampian Hills...	Clearfield....	43.3	26	46.6	+ 3.3	52.2	1878	29.0	1875
Wellsborough...	Tioga.....	43.8	12	45.4	+ 1.6	52.2	1886	40.1	1881
South Carolina.									
Statesburgh.....	Sumter.....	62.3	10	63.0	+ 0.7	64.6	1882	60.1	1884
Tennessee.									
Austin.....	Wilson.....	59.1	21	61.6	+ 2.5	65.3	1876	53.9	1874
Texas.									
New Ulm.....	Austin.....	68.6	18	68.6	0.0	71.5	1878, '80	63.6	1874
Vermont.									
Stratford.....	Orange.....	40.6	18	44.5	+ 3.9	48.3	1886	34.9	1874
Virginia.									
Birdsnest.....	Northampton	54.5	23	56.6	+ 2.1	61.6	1880	49.4	1875
Washington.									
Fort Townsend...	Jefferson....	48.8	17	48.3	- 0.5	52.4	1889	36.2	1859
Wisconsin.									
Madison.....	Dane.....	44.5	23	46.4	+ 1.9	49.8	1870	37.4	1874

MAXIMUM AND MINIMUM TEMPERATURES.

The highest temperature reported by a regular station of the Signal Service was 102, at Yuma, Ariz., and the maximum temperature was above 90 in the lower Colorado and Gila valleys, in the upper San Joaquin valley, from Kansas northward over the Dakotas, and at Rio Grande City, Tex. The lowest maximum temperature reported was 57, at Tatoosh Island, Wash., and the maximum temperature was below 70 on the immediate north Pacific coast, over a greater part of Maine, and on the southeast New England coast. At the following-named stations the maximum temperature was as high or higher than previously reported for April: Chattanooga, Tenn., 89, the same as 1887; Louisville, Ky., 88, the same as 1883; Cincinnati, Ohio, 85, the same as 2 or more years; Toledo, Ohio, 86, 1 above 1888; Alpena, Mich., 79, the

same as 1885; Grand Haven, Mich., 81, 1 above 1883; Marquette, Mich., 87, 5 above 1887; Duluth, Minn., 81, 1 above 1887; Saint Vincent, Minn., 90, 6 above 1887; Moorhead, Minn., 91, 5 above 1887; Bismarck, N. Dak., 90, 3 above 1887; Fort Sully, S. Dak., 93, the same as 1874; Valentine, Nebr., 89, the same as 1887; Omaha, Nebr., 90, 1 above 1880; Fort Stanton, N. Mex., 78, the same as 1887; Fort Custer, Mont., 86, 2 above 1881; Fort Assiniboine, Mont., 84, 3 above 2 or more years; Helena, Mont., 82, 4 above 2 or more years; and Port Angeles, Wash., 67, the same as 1885.

The reports of United States Army post surgeons and voluntary observers show the following maximum temperatures in states and territories where temperature rising to or above 90 was reported for April, 1891: Volcano Springs, Cal., 112; Maricopa, Ariz., 108; Oelrichs, S. Dak., 102; Eureka Ranch, Kans., 101; Beaver City and Lexington, Nebr., 100; Moab, Utah, 97; Camp Del Rio and Fort Hancock, Tex., Denison, Iowa, and Glendive, Mont., 96; Portsmouth (2), Ohio, 95; Richmond, Va., and Archer, Fla., 94; Lead Hill, Ark., and Vaiden, Miss., 93; Winnsborough, S. C., Wiggins, Ala., several stations in Colorado, Louisville, Ga., Frankfort (2), Ky., and Kinbrae, Minn., 92; Harriman, Tenn., 91; several stations in N. Dak., Guthrie, Okla. T., Flora, Ill., Huntingburgh, Ind., Fort Supply, Ind. T., and Liberty Hill, La., 90.

The lowest temperature reported by a regular station of the Signal Service was 6, at Saint Vincent, Minn., Fort Washakie, Wyo., and Denver, Colo. The minimum temperature was below 10 in extreme north New England, in extreme east upper Michigan, and from North Dakota southwestward over central Wyoming and thence southeast over central Colorado. The minimum temperature was below 20 north of a line traced from east-central Maine west-southwest to south New Mexico, thence northwestward to northwest Nevada, and thence east of north to west Montana. At the following-named stations of the Signal Service the minimum temperature was as low or lower than previously reported for April: Charlotte, N. C., 26, 2 below 1881; Jacksonville, Fla., 34, 3 below 1881; Key West, Fla., 54, 7 below 2 or more years; Pensacola, Fla., 34, the same as 1881; Mobile, Ala., 32, the same as 1881; Palestine, Tex., 36, the same as 1886; Fort Smith, Ark., 28, 2 below 1887; Montrose, Colo., 17, 1 below 1886; San Francisco, Cal., 40, the same as 1875; Port Angeles, Wash., 27, 1 below 1890.

The reports of United States Army post surgeons and voluntary observers shows the following minimum temperatures in states and territories where temperature falling to or below 20 was reported for April, 1891: Breckenridge, Colo., -35; Henry's Lake, Idaho, -14; Chama, N. Mex., -11; Hayward, Wis., -5; Leech Lake and Pine River, Minn., and Gallatin, N. Dak., 0; Gaylord, Mich., 1; West Milan, N. H., 2; Fort D. A. Russell, Wyo., 4; Ely, Nev., 5; Fort Niobrara, Nebr., and Jacksonville, Vt., 6; Orangeville, Ohio, and Webster, S. Dak., 7; Keene Valley, N. Y., and Beaver, Utah, 8; Martinsdale, Mont., 9; Point Isabel, Ind., Greenville, Pa., and Lapush, Wash., 11; Boca, Cal., Farmington, Me., and Monson, Mass., 12; Eureka Ranch, Kans., 13; Larrabee, Iowa, Beulah and Joseph, Oregon, and Tannery, W. Va., 14; Canton, Conn., Adrian, Mo., and Marion, Va., 15; Aurora (1), Ill., and Fort Supply, Ind. T., 17; Cooley's, Ariz., several stations in N. J., Franklin, N. C., and Kingston (2), R. I., 20.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart IV by a line traced from the Virginia coast, southwest to extreme south Alabama, thence west of north to west Tennessee, thence south of west to south New Mexico, and thence north of west to extreme south Nevada, and the western limit of freezing weather is shown by this line continued northward over east California to southwest Oregon, thence northeast over the valley of the Columbia River, and thence northwestward to extreme northwest Washington.

RANGES OF TEMPERATURE.

The greatest and least daily ranges of temperature are given in the table of Signal Service data. The greatest monthly ranges of temperature occurred in North Dakota and northwest Minnesota, where they exceeded 80, whence they decreased eastward to less than 40 on the New England coast, southeast to less than 30 over extreme south Florida, southward to less than 40 on the west Gulf coast, southwest to less than 40 on the middle and south Pacific coasts, and west to less than 30 on the north Pacific coast.

FROST.

Killing frost was generally reported in the Gulf and south Atlantic states, and in Florida as far south as Jupiter Inlet and Lee county, from the 3d to 7th. In Florida vines, fruits, and vegetables were injured. At Tampa, Fla., the heavy frost of the 7th was reported the first ever observed in that locality. The observer reports, however, that frost probably occurred in that section in April, 1857, when the temperature fell to 26 at Tampa, to 32 at Fort Myers, to 30 at Fort Pierce, on Indian River, and at Fort Dallas. There is positive evidence of frost and ice on December 25th and 26th, 1856, and January 20th, 1857, at Fort Dallas, Fla., which is below the 26th parallel, and Assistant Surgeon R. F. Simpson, U. S. Army, reported that in April, 1857, frost and ice occurred at that place, and that on the morning of January 20th, 1857, the thermometer was 30. At Jupiter, Fla., the killing frost of the 7th seriously injured fruit and vegetables. At De Land, Fla., the new tender growth of evergreen trees was injured. In Georgia fruit was injured and vines and vegetables killed. In the Carolinas fruit was injured and tender plants and early vegetables damaged. In Alabama young buds were nipped and delicate vegetation destroyed. In Mississippi and Louisiana fruit and early vegetables were considerably injured. At Memphis, Tenn., killing frost damaged peaches on the 4th. On the 21st the peach crop at Barren Creek Springs, Md., was damaged. On the 25th light frost injured tender plants and grapevines at Walla Walla, Wash. On the 26th frost damaged young crops and grapevines at Egg Harbor City, N. J. On the 29th frost injured garden vegetables at Philo, Ill., and killed asparagus plants at Dyberry, Pa.

Compared with the preceding month the southern limit of frost for April, 1891, was about 3° farther south in Florida. In Texas the southern limit was about the same. In Arizona the southern limit in April was about 1° farther north, and in California the southern limit was about the same.

The killing frost on the 5th to 7th in Florida was about 2 months late, and that of the 3d to 7th in the Gulf States was about 1 month late, when compared with the average date of last killing frost in the respective localities.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for April, 1891, as determined from the reports of nearly 2,000 stations, is exhibited on Chart III. In the table of Signal Service data the total precipitation and the departure from the normal are given for each Signal Service station. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal

show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

The heaviest monthly precipitation reported was 13.84, at Gallinas, Tex.; 13.74 fell at Huntsville, Tex.; 11.84 at Neah Bay, Wash.; 11.35 at Bandon, Oregon; and 11.22 at Upper Mattole, Cal. The precipitation exceeded 8.00 generally along

the immediate Pacific coast north of the 40th parallel, and in areas in east Texas. No rainfall was reported in extreme southeast California, and in an area extending from southeast Arizona to extreme west Texas, and less than 1.00 was reported over the northern plateau and thence northeast to Manitoba, in California south of the San Joaquin Valley, over the greater part of the southern plateau, east Utah, and west Colorado, on the Louisiana coast, in the extreme north part of the upper lake region, in east-central Georgia, and at Hatteras, N. C.

The monthly precipitation was above the normal on the north Pacific coast, at San Francisco, Cal., from east Montana and the Dakotas southward to east Texas, at the more northern stations in the Lake region, in the middle Saint Lawrence valley, generally in Nova Scotia, and at Lynchburgh, Va.; elsewhere the precipitation was below the normal. The greatest departure above the normal precipitation was noted on the extreme north Pacific coast, where it exceeded 4.00, and there was an excess of more than 2.00 along the Washington coast, from south-central Indian Territory over east-central Texas, and at Parry Sound, Ont. The most marked departure below the normal precipitation was reported at Hatteras, N. C., where it was more than 4.00, and the deficiency was more than 2.00 from the middle coast of the Gulf of Mexico northward to Kentucky.

Considered by districts the average percentage of the normal in districts where the precipitation was in excess was about as follows: Rio Grande Valley, 209 per cent.; north Pacific coast, 159 per cent.; extreme northwest, 139 per cent.; and northeast slope of the Rocky Mountains, 113 per cent. In districts where the precipitation was deficient the percentage of the normal was about as follows: southern plateau, 11 per cent.; east Gulf states, 34 per cent.; south Atlantic states, 44 per cent.; Ohio Valley and Tennessee, 53 per cent.; northern plateau, 57 per cent.; Key West, Fla., 62 per cent.; middle plateau, 62 per cent.; south Pacific coast, 64 per cent.; New England and middle Atlantic states, 68 per cent.; lower lake region, 76 per cent.; Missouri Valley, 87 per cent.; upper Mississippi valley and southeast slope of the Rocky Mountains, 88 per cent.; middle Pacific coast, 93 per cent.; west Gulf states, 96 per cent.; upper lake region and middle-eastern slope of the Rocky Mountains, 97 per cent.

At the following-named stations the precipitation for the current month was the heaviest ever reported for April: Palestine, Tex., 8.95, 4.64 greater than the normal, and 1.65 greater than in 1884; Lawrence, Kans., 5.79, 2.59 greater than the normal, and 0.07 greater than in 1885; Fort Canby, Wash., 7.80, 3.92 greater than the normal, and 1.42 greater than in 1887; Port Angeles, Wash., 3.03, 0.63 greater than the normal, and 0.36 greater than in 1886; Neah Bay, Wash., 11.84, 6.72 greater than the normal, and 4.05 greater than in 1888; Tatoosh Island, Wash., 9.62, 4.59 greater than the normal, and 1.11 greater than in 1887. The greatest precipitation reported for April occurred in Maryland, District of Columbia, and east Virginia in 1889, when the precipitation was 5.00 to 8.00 in excess of the normal; over the west part of the middle plateau in 1887, when the excess was about 1.00; over the east part of the middle and northern plateau regions in 1886, when the excess was 1.00 to 2.00; on the Maine coast in 1884, when the excess was about 3.00; in the interior of the south Atlantic states in 1883, when the excess was 2.00 to 4.00; on the middle and south Pacific coasts, over the west part of the lower lake region, and in Ohio in 1880, when the excess was 3.00 to 10.00 in California, and 2.00 to 4.00 in Ohio and at Lake Erie stations; on the immediate south Atlantic coast in 1877, when the excess was 3.00 to 11.00; and in areas from New England southwest to the lower Mississippi valley in 1874, when the excess was 4.00 to 7.00 in New England and the north part of the middle Atlantic states, 5.00 to 12.00 in Tennessee, and 5.00 to 15.00 in north Louisiana and Mississippi.

At the following-named stations the precipitation for the current month was the least ever reported for April: Wellsborough, Pa., 1.07, 3.99 deficient, and 0.47 less than in 1881; Cleveland, Ohio, 1.52, 0.83 deficient, and 0.23 less than in 2 or

more years; Nashville, Tenn., 2.24, 2.70 deficient, and 0.12 less than in 1886; New Orleans, La., 0.26, 5.12 deficient, and 1.25 less than in 1878; Grand Coteau, La., 0.87, 4.18 deficient, and 0.90 less than in 1887; El Paso, Tex., 0.00, 0.20 deficient, and no rain fell in 1882; Fort Stanton, N. Mex., 0.02, 0.65 deficient, and 0.02 less than in 1887; Yuma, Ariz., 0.00, 0.09 deficient, and no rain fell in 4 preceding years; and Keeler, Cal., 0.10, 0.50 deficient, the same as 1890. The least rainfall ever reported for April on the middle and south Pacific coasts occurred in 1888, when the deficiency was 2.00 to 3.00; in the west Gulf states in 1887, when the deficiency was 3.00 to 5.00; on the north Pacific coast in 1885, when the deficiency was 2.00 to 5.00; and from northeast New Mexico to Nebraska in 1880, when the deficiency was 0.50 to 2.75.

In 1887, when the precipitation was the heaviest reported for April over the west part of the middle plateau, it was the least ever reported for that month in the west Gulf states. In 1880, when the precipitation was the heaviest reported for April on the middle and south Pacific coasts and at Lake Erie and Ohio stations, it was the least ever reported for April from northeast New Mexico to Nebraska.

The precipitation, January to April, 1891, inclusive, averaged about as follows: in New England, the east and west Gulf states, the Lake region, the upper Mississippi valley, over the middle plateau, and on the middle and south Pacific coasts, the precipitation about equaled the average. On the northeast and middle-eastern slopes of the Rocky Mountains the precipitation was about one-half greater than usual; in the middle Atlantic states, the Rio Grande Valley, and the extreme northwest it was about one-fourth greater than usual; and in the Ohio and Missouri Valleys, on the southeast slope of the Rocky Mountains, and over the south plateau, it was one-tenth to two tenths greater than usual. Over the north plateau about three-fourths of the usual amount of precipitation was reported, and on the south Atlantic coast, at Key West, Fla., and on the north Pacific coast, the deficiency was small.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for April for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for April, 1891; (4) the departure of the current month from the average; (5) and the extremes for April during the period of observation and the years of occurrence:

State and station.	County.	(1) Average for the month of April.	(2) Length of record.	(3) Total for April, 1891.	(4) Departure from average.	(5) Extremes for April.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
Arkansas.		Inches	Years	Inches	Inches.	Inches.		Inches	
Lead Hill.....	Boone.....	4.15	9	3.71	-0.44	6.61	1882	1.57	1889
California.									
Sacramento.....	Sacramento..	1.86	41	1.75	-0.11	14.20	1880	T.	1875
Connecticut.									
Middletown.....	Middlesex...	3.33	29	3.50	+0.57	7.16	1874	1.48	1882
Florida.									
Merritt's Island.	Brevard.....	4.00	13	7.50	+3.50	9.74	1878	0.53	1885
Georgia.									
Forsyth.....	Monroe.....	4.19	17	1.45	-2.74	9.59	1883	0.55	1888
Illinois.									
Peoria.....	Peoria.....	3.05	35	3.64	+0.59	6.25	1858	0.45	1870
Riley.....	McHenry....	2.92	40	4.05	+1.13	6.20	1868	0.60	1854
Indiana.									
Logansport.....	Cass.....	3.36	16	.....	.....	7.17	1890	0.85	1857
Vevay.....	Switzerland..	3.51	26	2.25	-1.26	7.18	1872	0.92	1889
Iowa.									
Cresco.....	Howard.....	2.14	19	2.38	+0.24	3.68	1888	1.11	1883
Monticello.....	Jones.....	2.56	35	2.00	-0.56	5.78	1862	0.63	1863
Logan.....	Harrison....	2.69	24	2.10	-0.59	5.44	1888	0.40	1870
Kansas.									
Lawrence.....	Douglas.....	3.20	24	5.79	+2.59	5.79	1891	1.06	1870
Wellington.....	Sumner.....	3.50	12	2.40	-1.10	6.49	1888	0.54	1880
Louisiana.									
Grand Coteau....	St. Landry..	5.05	8	0.87	-4.18	10.64	1890	0.87	1891
Maine.									
Orono.....	Penobscot...	2.91	31	3.26	+0.35	5.08	1887	1.28	1881
Maryland.									
Cumberland.....	Allegany....	2.40	19	2.02	-0.38	6.50	1874	0.60	1879

Deviations from average precipitation—Continued.

State and station.	County.	(1) Average for the month of April.	(2) Length of record.	(3) Total for April, 1891.	(4) Departure from average.	(5) Extremes for April.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
<i>Massachusetts.</i>		<i>Inches</i>	<i>Years</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>	
Amherst	Hampshire ..	3.16	55	3.57	+0.41	8.33	1854	0.57	1844
Newburyport ..	Essex	3.11	11	2.10	-1.01	4.99	1887	1.78	1890
Somerset	Bristol	3.87	18	4.01	+0.14	7.72	1874	1.52	1881
<i>Michigan.</i>									
Kalamazoo	Kalamazoo ..	2.57	15	3.65	+1.08	8.00	1880	0.92	1876
Thornville	Lapeer	2.35	14	2.13	-0.25	6.13	1880	1.34	1889
<i>Minnesota.</i>									
Minneapolis	Hennepin	2.39	23	2.02	-0.37	5.12	1888	0.53	1881
<i>Montana.</i>									
Fort Shaw	Lewis & Clarke	0.64	20	0.90	+0.26	2.30	1886	0.04	1875
<i>New Hampshire.</i>									
Hanover	Grafton	2.37	48	2.21	-0.16	6.00	1840	0.38	1872
<i>New Jersey.</i>									
Moorestown	Burlington ..	2.91	27	2.32	-0.59	8.40	1874	0.67	1881
South Orange ..	Essex	3.18	20	3.80	+0.62	7.54	1889	0.85	1881
<i>New York.</i>									
Cooperstown	Otsego	2.94	37	2.22	-0.72	7.12	1854	0.92	1863
Palermo	Oswego	2.36	37	1.73	-0.63	7.00	1859	0.26	1879
<i>North Carolina.</i>									
Lenoir	Caldwell	3.61	19	3.20	-0.41	7.80	1874	1.30	76, '85
<i>Ohio.</i>									
N. Lewisburgh ..	Champaign ..	2.76	19	3.75	+0.99	6.45	1880	0.63	1879
Wauseon	Fulton	2.57	18	4.39	+1.82	5.29	1890	1.31	1872
<i>Oregon.</i>									
Albany	Linn	3.38	14	3.37	-0.01	6.53	1883	1.38	1885
Eola	Polk	2.65	20	3.71	+1.06	6.50	1883	0.89	1888
<i>Pennsylvania.</i>									
Dyberry	Wayne	2.48	22	2.42	-0.06	5.07	1874	0.80	1882
Grampian Hills ..	Clearfield	3.49	20	2.34	-1.15	6.11	1874	1.35	1870
Wellsborough ..	Tioga	4.99	12	1.07	-3.92	10.77	1886	1.07	1891
<i>South Carolina.</i>									
Statesburgh	Sumter	2.41	10	1.21	-1.20	4.17	1883	0.83	1888
<i>Tennessee.</i>									
Austin	Wilson	4.85	23	2.59	-2.26	11.98	1877	1.79	1876
<i>Texas.</i>									
New Ulm	Austin	3.95	18	4.57	+0.62	8.00	1873	0.17	1887
<i>Vermont.</i>									
Strafford	Orange	2.75	18	2.40	-0.35	12.20	1874	0.60	73, '81
<i>Virginia.</i>									
Birdanest	Northampton	3.63	22	2.95	-0.68	11.25	1889	1.10	1869
<i>Washington.</i>									
Fort Townsend ..	Jefferson	1.53	15	2.42	+0.89	2.98	1883	0.38	1877
<i>Wisconsin.</i>									
Madison	Dane	4.52	22	1.55	-2.97	5.49	1861	0.96	1887

EXCESSIVE PRECIPITATION.

Monthly precipitation to equal or exceed 10.00 was reported at 2 stations in Texas, and at 1 station in Wash., Oregon, and Cal.; the heaviest rainfall, 13.84, being reported at Gallinas, Tex.

In the last 21 years precipitation to equal or exceed 10.00 has been reported for April for 10 years in La. and Miss.; for 8 years in Ark. and N. C.; for 7 years in Ala.; for 6 years in Tenn.; for 5 years in Tex.; for 4 years in Ga.; for 3 years in Ind., Kans., and Va.; for 2 years in Fla., Ill., Md., N. H., N. J., Ohio, and S. C.; and for 1 year in Colo., Conn., Ind. T., Ky., Mass., Mich., Mo., Nebr., N. Y., Pa., Vt., and Wis.

Precipitation to exceed 20.00 in April was reported in Ark. in 1886, in Cal. in 1880, in Miss. in 1871 and 1874, and at Mount Washington, N. H., in 1878. Precipitation to exceed 15.00 in April was reported for 3 years in Tex., La., and Ark.; for 2 years in Ala.; and for 1 year in Cal., Ga., Miss., N. Y., N. C., S. C., and Tenn.

Precipitation to equal or exceed 2.50 in 24 hours was reported for 14 stations in Tex., and on 9 dates, the 11th to 13th and 17th to 22d; at 7 stations in Nebr., and on 4 dates, the 14th to 16th and 19th; at 5 stations in Miss., and on 2 dates, the 10th and 13th; at 4 stations in Mo., and on 3 dates, the 8th, 9th, and 14th; at 3 stations in Kans., and on 4 dates, the 1st, 13th, and 16-17th; at 2 stations in N. C., and on 2 dates, the 10th and 11th; at 2 stations in Fla., and on 3 dates, the 26th, 27th, and 29th; at 2 stations in Okla. T., and on 2 dates, the 18th and 19th; at 2 stations in Oregon, on the 22d; at 2 stations in Cal., and on 2 dates, the 7th and 10th; at 2 stations in La., and on 3 dates, the 10th, and 22-23d; at 1 station in Mass., on the 3d; at 1 station in New Mexico, on the 27th; and at 1 station in Wis., on the 20th. Among the heavier rainfalls reported for this period are: 8.12, at Gallinas, Tex., 20th-21st; 7.50, at Austin, Mo., 8-9th; and 4.93, at Fort McIntosh, Tex., on the 19th.

In the last 21 years precipitation to equal or exceed 2.50 in 24 hours in April has been reported for 13 years in Ala., Ark., Ga., La., Tenn., and Tex.; for 11 years in Miss. and N. C.; for 9 years in Kans. and Fla.; for 8 years in the Dakotas and Ill.; for 7 years in Ind.; for 6 years in Ind. T.; for 5 years in Iowa and Ky.; for 4 years in Md., Mo., Nebr., S. C., and Va.; for 3 years in Conn., N. Y., and Pa.; for 2 years in Cal., Colo., Minn., and Vt.; and for 1 year in Fla., Me., Mass., Mich., Mont., N. J., Ohio, R. I., Wis., and Wyo. Among the heavier 24-hour rainfalls reported for this period are: 12.28, at Point Pleasant, La., 5th, 1885; 11.00, at Fort Smith, Ark., 23d, 1879; and 7.30, at Mobile, Ala., 19th, 1882. Precipitation to exceed 5.00 in 24 hours has been reported for 4 years in Tex.; for 3 years in La.; for 2 years in Ala., Ark., and Kans.; and for 1 year in Cal., D. C., Ga., Ill., Ind., Md., Pa., S. C., and Va.

Precipitation to equal or exceed 1.00 in 1 hour was reported at 6 stations in Tex., and on 6 dates, the 1st, 9th, 11th, 12th, 17th, and 21st; at 2 stations in Kans., and on 2 dates, the 16th and 17th; at 2 stations in Miss. on the 10th; at 1 station in Ill. on the 9th; at 1 station in Ohio on the 9th; at 1 station in New Mexico on the 27th; and at 1 station in N. C. on the 11th. At Gallinas, Tex., 5.40, fell in 5 hours on the 21st, and 5.20 in 2 hours and 15 minutes on the 17th. At York, Pa., 0.25 fell in 9 minutes on the 11th; at Memphis, Tenn., 0.35, in 5 minutes, on the 15th; at Philadelphia, Pa., 0.45, in 5 minutes, on the 16th; and at Corpus Christi, Tex., 0.52 fell in 13 minutes, on the 20th. Excessive rainfall for 5 and 10 minute periods at regular stations of the Signal Service is given in the table of "Maximum rainfall in 1 hour or less."

In the last 21 years precipitation to equal or exceed 1.00 in 1 hour has been reported for 9 years in Tex.; for 5 years in Fla.; for 4 years in Ark. and Tenn.; for 3 years in Ga., Ill., Iowa, and Kans.; for 2 years in Ala., La., Miss., N. C., Pa., and S. C.; and for 1 year in the Dakotas, Md., Mich., Mo., Nebr., and N. J. Among the heavier rainfalls reported for this period are: 1.12 in 12 minutes at Atlanta, Ga., 24th, 1889; 1.39 in 15 minutes at Egg Harbor City, N. J., 27th, 1890; 1.50 in 20 minutes at Jacksonville, Fla., 23d, 1883; and 1.50 in 10 minutes at Adrian, Mich., 5th, 1888.

Table of excessive precipitation, April, 1891.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.		
		Am't.	Day.	Am't.	Time.	Day.
<i>California.</i>	<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	<i>h. m.</i>	
Upper Mattole	11.22	3.80	7			
Do.		4.54	10			
<i>Florida.</i>						
Merritt's Island	3.77		27			
Orange City	3.74		26, 27			
<i>Illinois.</i>						
Lacon				1.00	0 45	9
<i>Kansas.</i>						
Columbus		3.01	16, 17			
Dodge City				1 00	0 55	16
Oberlin		2.50	1			
Rome				1 27	1 00	17
Seneca		2.80	13			
<i>Louisiana.</i>						
Alexandria		3.40	22, 23			
Marksville		2.50	10			
<i>Massachusetts.</i>						
Northampton		3.05	3			
<i>Mississippi.</i>						
Brookhaven		2.58	10			
Fayette		3.27	10	3 27	2 00	10
Kosciusko		2.50	13			
Logtown		4.00	10	4 00	3 00	10
Water Valley		2.83	10			
<i>Missouri.</i>						
Austin		7.50	8, 9			
Eight Mile		2.75	8, 9			
Harrisonville		3.60	8, 9			
Saint Joseph		2.73	14			
<i>Nebraska.</i>						
Ansley		3.00	14			
Burwell		3.28	16			
North Loup		2.64	15			
Oakdale		3.81	19			
O'Neill		3.00	15, 16			
Ravenna		2.65	15, 16			

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Nebraska—Continued.</i>						
Wallace	<i>Nebraska.</i>	<i>Inches.</i>	<i>Inches.</i>			
Wallace	<i>New Mexico.</i>	4.43	19			
Los Lunas	<i>North Carolina.</i>			2.40	2.15	27
Mount Airy		2.79	10			
Littleton	<i>Ohio.</i>	2.70	11	1.37	1.00	11
West Milton	<i>Oklahoma Territory.</i>			1.30	1.00	9
Fort Sill		3.25	18, 19			
Oklahoma City	<i>Oregon.</i>	2.96	19			
Bandon		11.35	2.56	22		
Gardiner	<i>Texas.</i>	2.50	22			
Austin (1)		4.80	19, 20			
Austin (3)		4.17	19, 20			
Brownsville				1.50	1.00	1
Burnet		3.54	19, 20			
Childress				1.00	1.00	17
College Station				1.95	1.00	9
Corsicana (1)		2.94	19, 20			
Corsicana (2)		2.65	12, 13			
Do		3.42	19, 20			
Duval		3.10	20			
Fort McIntosh		4.93	19			
Gallinas		13.84	5.20	17	5.20	2.15
Do			8.12	20, 21	5.40	5.00
Huntsville		13.74	4.00	18		
Do			3.00	22		
Lonier			3.50	11	3.50	1.00
Luckenbach			2.50	19, 20		
New Braunfels			3.91	19, 20		
Palestine			3.33	17, 18	1.36	1.00
Victoria			2.80	20		
Waco (2)			2.70	13		
Do			3.90	19, 20		
Wichita Falls	<i>Washington.</i>		3.40	18, 19		
Neah Bay	<i>Wisconsin.</i>	11.84				
Weston			2.50	20		

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during April, 1891, for periods of five and ten minutes and one hour, as reported by regular stations of the Signal Service furnished with self-registering gauges:

Station.	Maximum fall in—					
	g min.	Date.	10 min.	Date.	1 hour.	Date.
Bismarck, N. Dak.	Inch.		Inch.		Inch.	
Boston, Mass.	0.05	15	0.09	15	0.25	15
Buffalo, N. Y.	0.02	10	0.03	10	0.15	10
Cincinnati, Ohio	0.05	9	0.10	9	0.25	9
Chicago, Ill.	0.15	17	0.17	17	0.35	9
Cleveland, Ohio	0.06	30	0.11	30	0.20	30
Denver, Colo.	0.03	18	0.05	18	0.10	18
Detroit, Mich.	0.19	14	0.26	14	0.42	14
Dodge City, Kans.	0.25	15	0.45	15	1.00	15
Duluth, Minn.	0.06	27	0.08	27	0.18	27
Eastport, Me.					0.06	15
Galveston, Tex.	0.15	22	0.20	22	0.38	22
Jupiter, Fla.	0.10	18	0.20	18	0.40	18
Kansas City, Mo.	0.20	13, 18	0.25	13, 18	0.40	13
Key West, Fla.	0.04	24	0.07	24	0.19	24
Marquette, Mich.						
Memphis, Tenn.	0.35	15	0.55	15	0.80	15
New York City	0.02	2	0.03	2	0.17	2
New Orleans, La.	0.05	21	0.06	21	0.09	21
Norfolk, Va.	0.20	12	0.25	12	0.47	12
Philadelphia, Pa.	0.45	16	0.67	16	0.85	16
Philadelphia Water Works	0.25	16	0.50	16	0.60	16
Portland, Oregon	0.03	7	0.05	7	0.15	7, 22
Saint Louis, Mo.	0.13	16	0.22	16	0.40	16
Saint Paul, Minn.	0.04	21	0.06	21	0.10	20
San Diego, Calif.						
San Francisco, Cal.						
Savannah, Ga.	0.15	2, 23	0.25	23	0.55	23
Washington City	0.23	11	0.36	11	0.77	11
Wilmington, N. C.	0.05	11	0.08	11	0.25	11

* Not sufficient to register. † Register not working. ‡ No record on account of snow.
SNOW (in inches and tenths).

Chart IV shows the depth of snowfall reported for the month. The heaviest monthly snowfall reported was 46.0, at Summit, Cal. Snowfall to exceed 20.0 was reported in the mountains

of central Colorado, and at stations in Vermont and New Hampshire. In central and west-central Nevada, central and north-central Wyoming, generally in central and southwest Colorado, in north-central upper Michigan, in New England, except along the coast, in northeast and southeast New York, and at points in the Alleghany Mountains from extreme west Virginia northward the monthly snowfall was more than 10.0. Trace of snowfall was reported north of a line traced from the New Jersey coast southwestward to east-central Alabama, thence northwest to southern Illinois, thence westward to southern Kansas, thence southwestward to southern New Mexico, thence north of west to east California in about latitude north 37°, thence west of north over east California, and thence irregularly northeast to west Montana. 4.0 was reported at Tehachapi and 3.0 at Julian, Cal., and 3.5 at Happy Valley, Oregon. No snow was reported on the ground at the close of the month.

Snowfall of five inches, or more, was reported as follows, and in states and territories where the maximum depth was less than that amount, the station reporting the greatest is given: *Alabama*.—Auburn and Valley Head, trace. *Arizona*.—Chloride, 0.5. *California*.—Summit, 46; Cisco, 37; Emigrant Gap, 28; Truckee (1), 20.5; Boca, 17. *Colorado*.—Georgetown, 22.5; Climax, 19.5; Leadville, 19.2; Moraine and Rico, 18; Breckenridge, 17; Fort Lewis, 15.8; Como (near) and Husted, 13; Fort Logan and Smoky Hill Mine, 12; Stamford, 11.5; Dillon and Saint Cloud, 11; Elkhorn, 10.5; Denver, 9.2; Box Elder and Sheridan Lake, 9; Canon City, Cumbres, Red Cliff, and Stunner, 8; Del Norte and Pagoda (near), 7.5; Dumont, 6.3; Castle Rock, Cheyenne Wells, Deer Trail, and Yuma, 6; Jefferson, 5.6; San Luis, 5.4; Alma, Greenhorn, and Thon, 5. *Connecticut*.—New Hartford (2), 18; Canton, 16; Falls Village, 15; New Hartford (1) and Waterbury, 11; West Simsbury, 10; Newington, 7; Hartford (2), Mansfield, and Southington, 6. *Georgia*.—Atlanta, 0.8. *Illinois*.—Aurora (2), 4. *Indiana*.—Indianapolis, 3.8. *Iowa*.—Bedford, 2.5. *Kansas*.—Gove City and Tribune, 8. *Kentucky*.—Harrodsburgh, 7. *Maine*.—Farmington, Kent's Hill, and Mayfield, 12; Orono, 11; Calais, 10; Kennebec Arsenal, 9; Belfast and Lewiston, 8; Fairfield, 6. *Maryland*.—Cumberland (2), 0.5. *Massachusetts*.—Royalston, 19.4; Florida, 17; Fitchburgh (1 and 2), 13; Groton (1), 12; Amherst (1 and 2), 11; Fiskdale and Leominster, 10; Leicester, 9.2; Gilbertville, 9; Ludlow (1 and 2) and Springfield Armory, 8; Westborough, 7; North Billerica, 6; Dudley, 5. *Michigan*.—Marquette, 12. *Minnesota*.—Fort Ripley, 9; Pine River, 7; Minneapolis and Farmington, 6. *Mississippi*.—Pontotoc, trace. *Missouri*.—Dadeville, 2. *Montana*.—Virginia City, 12.

Nebraska.—Hay Springs, 3.5. *Nevada*.—Palmetto, 20.5; Eureka, 17.2; Austin, 15.8; Candelaria, 12; Ely, 11; Crane's Ranch, 9; Carson City, 8.4; Genoa, 8.2; Lewer's Ranch, 6; Pioche, 5.7. *New Hampshire*.—Walpole, 20; Berlin Mills, 16; Antrim, 15; Wolfborough, 14.4; West Milan, 13; Hanover (1 and 2), 11; Concord, 10; Lake Village, 8.8; Belmont, 8.4; Littleton, 8; Stratford, 7; Manchester, 6.7; Nashua and Plymouth, 6. *New Jersey*.—Deckertown, 5.8; Newton, 5. *New Mexico*.—Embudo and Fort Wingate, 2. *New York*.—Honey-mead Brook, 18.6; Malone, 17; Boyd's Corners, 13; Carmel, 12; Humphrey, 9.5; West Point, 9; Rondout, 8.5; White Plains, 7; Plattsburgh, 6.7; Number Four, 6.2; Plattsburgh Barracks, 6.1; Quaker Street, 6; Factoryville, 5.7; Brookfield, 5.5; South Canisteo, 5.4; Cooperstown and Turin, 5.2; Middleburgh, Port Jervis, and Watervliet Arsenal, 5. *North Carolina*.—Bakersville, 6. *North Dakota*.—Fort Yates, 6.5; Bismarck, 5.1. *Ohio*.—Bement, 4. *Oregon*.—Siskiyou, 6.5. *Pennsylvania*.—Blue Knob, 16.5; Salem Corners, 16; Dyberry, 10; Pleasant Mount, 9.8; Eagle's Mere, 5.5; Le Roy, 5. *Rhode Island*.—Bristol, Kingston (1), Providence (1 and 2), trace. *South Dakota*.—Spearfish, 13.5. *Tennessee*.—Northville, 2. *Utah*.—Beaver, 10; Park City, 7.5; Parowan, 6. *Vermont*.—Jacksonville, 23; Vernon and Weathersfield Centre, 18; Northfield, 15.5; Chelsea and East Berkshire, 15; Strafford, 14; Burling-

ton, 10.5; Cornwall and Hartland, 10. *Virginia*.—Marion, 12; Abingdon, 9; Big Stone Gap, 5. *West Virginia*.—Tyler Creek, 3. *Wisconsin*.—Butternut, 8; Bayfield, 6.5; Medford (1), 6; Hayward, 5.5; Ithaca and Phillips, 5. *Wyoming*.—Fort Washakie, 24.1; Fort McKinney, 12; Cheyenne, 6.8.

The following is the heaviest snowfall reported for April in the several states and territories from 1882 to 1890, inclusive: Ariz., 14.0, at Cooley's Springs, in 1890; Cal., 126, at Summit, in 1884; Colo., 61.2, at Pike's Peak, in 1886; Conn., 14.0, at North Colebrook, in 1887; Ill., 10.5, at Riley, in 1884; Ind., 17.5, at Farmland, in 1886; Iowa, 5.5, at Manchester, in 1884; Kans., 18.0, at Fort Scott, in 1884; Ky., 5.8, at Frankfort, in 1886; Me., 21.0, at Cornish, in 1888; Md., 10.0, at Cumberland, in 1889; Mass., 26.0, at Princeton, in 1884; Mich., 39.3, at Hudson, in 1885; Minn., 18.2, at Saint Vincent, in 1885; Mo., 6.5, at Saint Louis, in 1886; Mont., 18.4, at Fort Maginnis, in 1887; Nebr., 14.8, at North Platte, in 1886; Nev., 26.0, at Ruby Hill, in 1890; N. H., 66.0, at Mount Washington, in 1882; N. J., 7.0, at Vineland, in 1887; N. Mex., 5.8, at Santa Fe, in 1885; N. Y., 19.5, at Rochester, in 1885; N. C., 17.0, at Raleigh, in 1887; Ohio, 22.0, at Jacksonborough, in 1886; Oregon, 7.5, at Vernonia, in 1890; Pa., 23.9, at Drifton, in 1884; R. I., 13.2, at Block Island, in 1887; Dakota, 45.1, at Deadwood, in 1887; Tex., 3.0, at Ochiltree, in 1890; Utah, 13.6, at Nephi, in 1883; Vt., 29.0, at Strafford, in 1887; Va., 11.5, at Alum Springs, in 1889; W. Va., 10.5, at Helvetia, in 1885; Wis., 18.5, at Wausau, in 1885; and Wyo., 22.0, at Cheyenne, in 1890.

HAIL.

Description of the more severe hail storms of the month is

given under "Local Storms." Hail was reported as follows: 1st, Ind., Ky., Minn., Miss., Mo. 2d, Ill., Minn., N. C., Wash. 3d, Ind., Mo., Ohio, Tenn. 4th, N. J., Va. 6th, Cal., Colo., Mo., Ohio. 7th, Cal., Nev., Oregon. 8th, Cal., Iowa, Kans., Minn., Mo., S. Dak., Tex., Wis. 9th, Ark., Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Tenn., Tex. 10th, Ind., Ky., Mich., Miss., Ohio. 11th, Nev., N. C., Pa., Tenn., Tex. 12th, Iowa, Kans., Nebr., Okla. T., S. Dak., Tex. 13th, Iowa, Kans., Mo., Nebr., Nev. 14th, Mich., Ohio, Okla. T., Tex., Utah. 15th, Colo., Fla., Kans., Mo., Nebr., S. C., Tex., Utah, Wyo. 16th, Ariz., Ark., Colo., Ill., Iowa, Kans., Minn., Mo., Nebr., N. C., Pa., S. Dak., Tex., Utah, Wyo. 17th, Ill., Ind., Iowa, Kans., Mo., Nev., Ohio, Tenn., Tex., Va. 18th, Colo., Ind., Iowa, Nev., N. H., Pa., Tenn., Tex. 19th, Colo., Kans., Nev., S. Dak., Tenn., Tex. 20th, Colo., Iowa, Kans., Mont., Tenn., Tex., Wyo. 21st, Colo., Ill., Ind., Nebr., S. Dak., Tenn., Tex. 22d, Ark., Colo., Ill., Iowa, Ky., Mo., Ohio, Okla. T., Pa., Tenn., Tex., Wash. 23d, Cal., Miss., N. C., Oregon, Pa., Wash. 24th, Ga., Idaho, Oregon, S. C. 25th, Mass., N. J., Pa. 27th, N. Mex. 28th, Nebr., N. C., Wash. 29th, Idaho, Kans., Mont., Nebr., N. H., Wash. 30th, Ind., Ohio, Pa., S. Dak., Tex.

SLEET.

Sleet was reported as follows: 1st, Kans. 2d, Iowa, Wis. 3d, Ill., Me., Mass., Mo., Mont., N. Y., Pa., Tenn. 4th, Ind., Tenn. 5th, Tenn. 6th, Colo., Md. 7th, Cal., Nev., Utah. 8th, Iowa, Minn., Mo., Nebr., S. Dak., Wis. 9th, Mich., Minn. 10th, Minn. 12th, Pa. 14th, Mich. 16th, Utah. 18th, Ariz., Utah. 23d, Me. 24th, Cal. 25th, Cal., Me., Mass., Wyo.

WINDS.

The prevailing winds during April, 1891, are shown on Chart II by arrows flying with the wind. In New England, the middle Atlantic states, the lower lake region, the upper Mississippi valley, on the middle-eastern slope of the Rocky Mountains, over the southern and northern plateau regions, and on the middle Pacific coast the winds were mostly from southwest to northwest; in the south Atlantic states, on the northeast slope of the Rocky Mountains, over the middle plateau region, and on the north Pacific coast from southeast to southwest; over the Florida Peninsula, from northeast to southeast; in the west Gulf states and the Rio Grande Valley, from east to southeast; in the Ohio Valley and Tennessee, from west to north; in the upper lake region, from northwest to northeast; in the extreme northwest, from northwest to north; in the Missouri Valley, from the northwest; on the southeast slope of the Rocky Mountains, from the south; on the south Pacific coast, from the west; and in the east Gulf states, variable.

HIGH WINDS.

[In miles per hour.]

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Signal Service, as follows: 1st, 50, n., at Oklahoma City, Okla. T.; 60, w., at Fort Sill., Okla. T. 2d, 54, se., at Wood's Holl, Mass. 3d, 60, e., at Eastport, Me.; 60, ne., at Boston, Mass.; 52, se., at Nantucket, Mass.; 54, w., at Wood's Holl, Mass.; 70, se., at Block Island, R. I. 5th, 68, se., at Fort Canby, Wash. 8th, 54, nw., at Cheyenne, Wyo. 12th, 52, s., at Sioux City, Iowa. 16th, 53, s., at Sioux City, Iowa; 58, sw., at Dodge City, Kans. 20th, 63, nw., at Corpus Christi, Tex.; 50, se., at Chicago, Ill. 21st, 59, se., at Fort Canby, Wash. 22d, 40, sw., at Block Island, R. I.; 68, se., at Fort Canby, Wash. 25th, 50, sw., at Fort Du Chesne, Utah. 26th, 67, se., at Fort Canby, Wash.; 50, ne., at Kitty Hawk, N. C. 27th, 51, sw., at Port Huron, Mich. 29th, 54, n., at Fort Custer, Mont.

LOCAL STORMS.

1st.—At Oklahoma City, Okla. T., a severe gale began

about 5 p. m., causing damage to buildings, etc. At Guthrie, Okla. T., a heavy wind storm prevailed from 4 to 6 p. m., during which 1 building was blown down.

2-3d.—A severe gale prevailed along the New England and New Jersey coasts, causing damage to shipping and sea-side property. At Block Island, R. I., the wind attained a velocity of 70 miles per hour at 1.52 a. m., 3d; there was a heavy sea, and all vessels remained in port. At New Haven, Conn., snow began at 6.30 p. m., 2d, and ended at 10.45 a. m., 3d, with heavy wind shifting from ne. to nw. At New London, Conn., snow continued at intervals during the day and night of the 2d, with high ne. shifting to nw. winds. The wind on Long Island Sound was high, and the New York and Stonington boats were delayed several hours. At Boston, Mass., the wind blew with great force from 2 to 7 a. m., 3d, with a maximum of 60 miles per hour from the ne., and gusts of much greater force. From 8 p. m., 2d, to 8 a. m., 3d, the barometer fell 1.00 inch. Considerable damage was done in the city and vicinity. A report from Vineyard Haven, Mass., states that a schooner went ashore at West Chop; no lives lost. At Manchester, N. H., snow commenced the night of the 2d and continued throughout the 3d, with rain at intervals; total snowfall 6.5 inches. The storm was attended with high ne. winds and was the most severe in that section since March, 1888; fruit and shade trees were badly injured and telegraphic communication was cut off for the day. At Portland, Me., a violent ne. gale set in about 5 a. m., 3d, with heavy, moist snow at intervals until 1 p. m.; electric wires were prostrated, and at 4 p. m. the barometer was 29.01 (reduced). At Eastport, Me., a gale began at 4.35 a. m., 3d, and reached a maximum velocity of 60 miles per hour from the se. at 3.05 p. m., and ended at 5.55 p. m. On the 3d, during a heavy nw. sea and snow storm at Cleveland, Ohio, the tug "Tempest" was sunk inside the breakwater, and 3 men were drowned.

8th.—At 9.25 p. m., central time, a storm moved ne. over Garza, Tex., in a path about 50 yards in width. The storm was attended by heavy hail, continuous lightning, and very

heavy rain which continued after the storm, and caused damage to buildings to the extent of about \$500. A heavy wind and hail storm moved eastward over Grapevine, Tex., about 5 p. m., damaging crops. At Columbia, Mo., a thunder-storm began during the night and ended at 8 a. m., and a man was struck by lightning and killed about 8 miles from the city. At Nevada, Grundy Co., Mo., a severe storm was reported which caused damage to several buildings.

9th.—At Springfield, Mo., a thunder-storm began 1.25 p. m., and hail fell from 1.48 p. m. to 1.52 p. m. The hail-stones were of irregular shape and many of them measured 2 inches in diameter. The storm ended 3.20 p. m. Considerable damage was done by the hail. At Irishtown, Ill., a thunder-storm began 3.40 p. m., and hail fell for 25 minutes. Some of the hail-stones were the size of partridge eggs. At Jordon's Grove, Ill., a church was unroofed and several buildings damaged. At Milwaukee, Wis., a thunder-storm with high e. winds began 7.25 p. m. and ended 11.30 p. m. The rain was very heavy and the lightning brilliant. A building was struck by lightning and set on fire. A heavy rain and hail storm was reported at Hempstead, Tex. A destructive wind, rain, and thunder-storm was reported at Monticello, Ill., during which 2 buildings were struck by lightning.

10th.—At New Orleans, La., a thunder-storm moving northward began at 2.35 p. m. and lasted 55 minutes. A boy was struck by lightning and killed a few miles north of the city. At Memphis, Tenn., a violent thunder-storm began 11.30 p. m., 9th, and ended at 1 a. m., 10th, during which a building used for storing cotton was struck by lightning and burned, together with 8,000 bales of cotton.

11th.—A violent electric storm passed over York, Pa., in the evening, during which 0.25 inch of rain fell in 9 minutes. A violent thunder-storm with hail occurred in the evening in Carroll Co., Md.

12th.—At Palestine, Tex., a thunder-storm, with heavy rain, hail, and high winds occurred in the evening. A heavy wind and hail storm was reported at Gainesville, Tex., causing some damage in that vicinity. In Cooke and Grayson counties, Tex., wind, rain, and hail storms caused damage to buildings, etc. A severe local storm was reported at Beatrice, Nebr. At Leavenworth, Kans., high s. and se. winds with rain and distant thunder prevailed at intervals during the day; several trees were uprooted by the wind.

14th.—A heavy rain and hail storm occurred in the east part of McCulloch Co., Tex., in the afternoon. A violent electric storm was reported in Grayson Co., Tex.

15th.—At 7 p. m., local time, a storm passed ne. over Hansford, Tex., in a path about 400 yards in width. The storm was preceded by hail the size of pigeon eggs and heavy thunder and lightning. A funnel-shaped cloud was seen, but dust prevented accurate observation; 2 persons were killed and property was destroyed to the value of about \$25,000. Several persons stated that they observed balls of fire during the passage of the storm. The storm destroyed everything in its path. Prior to striking Hansford it had evidently been split, as on the flats 5 miles from town there were 2 distinct traces of its course. At Claude, Armstrong Co., Tex., 2 men were killed and several houses were destroyed. A severe storm also occurred at Palodura City, Tex. A heavy thunder-storm passed over Little Rock, Ark., about 4 a. m., burning out connections in the telephone exchange. A severe local storm was reported at Liberal, Kans., in the afternoon. A severe electric storm was reported at daylight at England, Ark.

16th.—At Dodge City, Kans., a violent thunder-storm began at 10.45 p. m., 15th, and between midnight and 1 a. m., 16th, the thunder and lightning were terrific, and heavy rain fell. About 1.10 a. m. the wind blew at the rate of 58 miles per hour and attained a force of 70 miles for 1 minute, causing considerable damage to out-houses, etc. Light hail fell at intervals from 12.15 to 12.55 a. m. Violent storms were reported in sw. Kansas and Texas. 3 miles n. of Carrollton, Mo., a storm from the nw. cut a path about 50 yards in width through the

timber. During a thunder and hail storm at Indianola, Iowa, 2 cows were killed by lightning. A severe electric storm occurred in Grundy Co., and a heavy wind storm in Saline Co., Mo. At Little Rock, Ark., a thunder-storm moving eastward, with rain and hail, occurred in the evening. Severe storms occurred in Georgia. Very heavy rainfall caused considerable damage in Glynn Co., and a man was killed by lightning near Savannah. A man was killed by lightning near Washington, N. C.

17th.—A heavy thunder-storm passed about 25 miles ese. of San Antonio, Tex., and crops were reported destroyed by heavy rain and floods. At Concordia, Kans., rain and distant thunder, with hail the size of walnuts, began at 6.58 p. m., flooding streets and basements. At Gallinas, Tex., the rainfall of the 17th-21st, inclusive (13.55), is remarkable as being in excess of that measured during any single month in 20 years. Most of the precipitation occurred during the storm of the 17th, 20th, and 21st. On the 17th 5.00 inches fell in less than 2 hours, and rain fell at about the same rate on the 21st. Incessant and violent thunder and lightning attended these storms, with dashes of hail the size of cherries. During a rain storm at Chattanooga, Tenn., what appeared to be pollen was deposited in the gutters and on houses. At Trenton, Mo., a boy was reported killed by lightning. At Olney, Ill., 2 barns were struck by lightning, one of which was burned. A destructive wind and hail storm was reported at Marion, Ind., in the afternoon. At Tarpon Springs, Fla., 2 buildings were struck by lightning and damaged.

18th.—During a heavy thunder-storm, with hail, a barn was struck by lightning and burned a few miles n. of Dyberry, Pa. Severe electric storms, with hail, occurred in central and south Pennsylvania. At Salladasburgh, Pa., a man was reported killed by lightning. Considerable damage was reported by lightning in Harford and Baltimore counties, Md. At Royalston, Mass., a severe thunder-storm, with heavy rain and incessant lightning, occurred. At Orange, Mass., 5 houses and 2 horses were struck, and one man was killed, by lightning. About 1 mile from Northville, Tenn., a storm began shortly after 1 p. m., and in a few minutes the rain fell in torrents and the thunder and lightning were terrific. A store and several trees in Crossville were struck by lightning. The sound of the electricity passing through the falling rain was like that produced by thrusting a red-hot bar of iron into water. A rivulet of fire which seemed to break out from a heavy black cloud ran down some 5°, when it divided, one-half rushing down and shivering a tall tree and the other half arching over the sky to the opposite side and producing a series of concussions like the discharge of heavy cannon. A severe storm was reported in Paladura Canyon, Tex.

19th.—A heavy thunder-storm moved ne. over Oklahoma City, Okla. T., and a cloud-burst was reported in the Cherokee Strip. Some stock was killed by lightning near Tullahoma, Tenn.

20th.—At Corpus Christi, Tex., a high se. wind had been blowing for several days. At 11.15 a. m. the wind veered to sw. and then to w. and nw. A bank of clouds in the nw. seemed to be thrown violently upward and in a few minutes the wind reached a velocity of 60 miles per hour, with heavy rain, 0.52 inch falling in 13 minutes. The wind continued in gusts until 5 p. m. The track of the storm was about 2 miles in width; several houses were blown down; 2 small boats were sunk; and a boy was killed by a falling shed. A severe storm was reported at Pittsburgh, Camp Co., Tex., demolishing a number of buildings and injuring several persons. A heavy rain and hail storm was reported at Del Rio, Tex. At Lawrenceburgh, Tenn., a storm of wind, rain, and hail damaged young vegetation.

21st.—A farmer and 2 horses were killed by lightning in Knox Co., Tenn. At Louisville, Ky., a thunder-storm from the sw., with high winds, prevailed in the afternoon; the temperature fell from 86° to 63° in 20 minutes. At Vevay, Ind., fences and trees were prostrated by a strong sw. gale.

23d.—Severe thunder and wind storms occurred in Connecticut. At Norwich a man was reported killed by lightning.

At Middletown, an iron building in course of erection was blown down.

27th.—A severe gale prevailed over the north part of the Lake region. At Duluth considerable damage was done to unfinished buildings. At Trout Lake, 44 miles west of Sault de Ste. Marie, Mich., wind uprooted trees and demolished houses.

30th.—A severe storm with thunder and lightning swept

over Tiffin, Ohio, about 5 p. m. The storm, which appeared to be a straight blow, moved eastward, damaging houses, trees, etc. The wind lasted about 5 minutes and was followed by a light fall of rain. Sells Brothers circus lost about \$5,000 by damage to properties, and several of the audience and employes were injured. A man was reported killed by lightning near Stockwell, Ind.

INLAND NAVIGATION.

Heights of rivers above low-water mark, April, 1891 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River.</i>						
Shreveport, La.	29.9	30	18.0	18, 19	13.8	4.2
<i>Arkansas River.</i>						
Fort Smith, Ark.	22.0	21	17.5	10	5.2	12.3
Little Rock, Ark.	23.0	23	20.9	13	8.1	12.8
<i>Missouri River.</i>						
Sioux City, Iowa.	18.7	10	10.6	8	6.0	4.6
Omaha, Nebr.	18.0	11	11.2	1	7.6	3.6
Kansas City, Mo.	21.0	15	14.5	11	9.6	4.9
<i>Mississippi River.</i>						
Saint Paul, Minn.	14.0	17	6.4	1	3.2	3.2
La Crosse, Wis.	13.0	27, 28	10.4	1	8.4	2.0
Dubuque, Iowa.	16.0	30	13.9	1	8.1	5.8
Davenport, Iowa.	15.0	29, 30	10.0	1	6.9	3.1
Keokuk, Iowa.	14.0	23	10.6	2	9.7	0.9
Saint Louis, Mo.	30.0	25	23.5	9, 10	18.1	5.4
Cairo, Ill.	40.0	6	44.8	30	31.3	13.5
Memphis, Tenn.	33.0	11, 15	33.9	30	28.0	5.9
Vicksburg, Miss.	41.0	2, 3, 4	48.1	21, 26	47.3	0.8
New Orleans, La.	13.0	2	15.8	30	15.0	0.8
<i>Ohio River.</i>						
Pittsburgh, Pa.	22.0	4	15.0	30	3.0	12.0
Parkersburg, W. Va.	38.0	4	24.8	30	6.0	18.8
Cincinnati, Ohio.	45.0	7	43.5	30	15.5	28.0
Louisville, Ky.	24.0	7	18.6	30	7.9	10.7
<i>Cumberland River.</i>						
Nashville, Tenn.	40.0	4	26.4	20, 30	11.4	15.0
<i>Tennessee River.</i>						
Chattanooga, Tenn.	33.0	2, 3	16.3	30	6.2	10.1
Knoxville, Tenn.	29.0	13	9.2	30	2.7	6.5
<i>Monongahela River.</i>						
Pittsburgh, Pa.	29.0	4	15.0	30	3.0	12.0
<i>Savannah River.</i>						
Augusta, Ga.	32.0	3	23.5	30	9.4	14.1
<i>Willamette River.</i>						
Portland, Oregon.	15.0	27, 28	8.8	4	2.6	6.2

ICE IN RIVERS AND HARBORS AND OPENING OF NAVIGATION.

Mississippi River.—At La Crosse, Wis., the river was clear of floating ice until 6.30 p. m. of the 1st, when it came down in great fields, doing considerable damage to the new sheer work of the new bridge. At Red Wing, Minn., the river was free of ice on the 5th. On the 10th ice on Lake Pepin was considerably broken up by high winds. Reports of the 16th indicated that the ice on Lake Pepin was sufficiently broken up to allow the passage of steamboats. On the 12th the first up-river boat of the season arrived at La Crosse, Wis.

Missouri River.—The ice gorge below Fort Buford, N. Dak., broke during early morning of the 1st. On the 4th navigation opened at Scranton, N. Dak. Ice was running out until the 4th, and on the 5th the river was clear of ice at that point. On the 3d the ice broke up at Bismarck, N. Dak., at 4 a. m. In the last 46 years the earliest date on which the ice was broken up at Bismarck was March 3d, 1871, and the latest date was April 21st, 1859. At Pierre, S. Dak., the earliest date upon which ice was broken up in the last 46 years was March 11th, 1873, and the latest date was April 20th, 1847. At Fort Yates, N. Dak., the ice was breaking up and moving out on the 4th. At Fort Sully, S. Dak., the river began filling up with broken ice on the 5th; 6th, river full of running ice; 26th, the first boat of the season going south; 29th, the first boat of the season going north. On the 10th the river was clear of ice at Yankton, S. Dak. On the 10th the river rose very rapidly at Sioux City, Iowa, with a large amount of drift and but little ice.

Saint Clair River.—On the 3d the Saint Clair River was closed by ice 12 miles south of Port Huron; 8th, large quantities of floating ice passing Port Huron; 9th, Saint Clair

River blocked with ice from Marysville to Saint Clair, a distance of 12 miles; 13th, ice from lake was filling up the river at Port Huron, and the steamer "Atlantic," which left Detroit on the 12th, was reported fast in the ice at Olgonac; 14th, river completely blocked by ice at Port Huron, and ferry-boats were unable to run; this condition never before existed at that place at this season of the year; 16th, the ice in the river was slowly breaking up at Port Huron.

Lake Champlain was opened for navigation at Plattsburgh Barracks, N. Y., on the 4th. At Burlington, Vt., navigation was resumed on the 9th. Navigation on Lake Ontario opened at Oswego, N. Y., on the 4th. At Buffalo, N. Y., ice was drifting down the Niagara River in large fields on the 2d; 5th, harbor clear of ice; 10th, lake entirely free of ice; 14th, navigation opened; 16th, the first boat of the season left. Navigation on Lake Erie opened at Erie, Pa., on the 11th; at Toledo, Ohio, on the 5th, and at Sandusky, Ohio, on the 7th. On the 9th Lake Huron was covered with ice as far as could be seen from Port Huron, Mich. On the 19th a steamer from Lake Michigan arrived at Duncan City, Mich.; this was the first boat of the season. At Sault de Ste. Marie, Mich., the first boat of the season, a tug, bound from Detroit for Ashland, arrived on the 27th. At Duluth, Minn., navigation opened on the 30th. Since 1880, the earliest date on which navigation opened at Duluth, was March 25th, 1889, and the latest date was May 9th, 1883. The first boat of the season from Milwaukee, Wis., arrived at Green Bay on the 13th. The first boat of the season left Port Huron, Mich., on the 19th, and Fort Gratiot Light was lighted for the first time this season. On the 20th a steam barge arrived at Port Huron from Oscoda, Mich.; this was the first arrival of the season. On the 23d vessels that had been ice bound at Saint Clair Flats forced their way through, opening navigation for the season. At Port Huron navigation opened 25 days later than last year. The first boat of the season from Bay City, Mich., arrived at Alpena on the 19th. Lake Winnebago was opened at Oshkosh, Wis., on the 21st.

FLOODS.

The month opened with the Mississippi River above the danger-line from Cairo, Ill., southward; it continued above the danger-line at Cairo until the 19th; at Memphis, Tenn., until the 22d; and at Vicksburg, Miss., and New Orleans, La., throughout the month.

On the 1st the Mississippi River was rising rapidly at Arkansas City, Ark. On the 2d the stage of the water was 48.1 feet, 7.1 feet above the danger-line, at Vicksburg, Miss., and 15.8 feet, 2.8 feet above the danger-line, at New Orleans, La. On the 3d the Concord crevasse was 1,000 feet in width. The river remained stationary at 48.1 feet at Vicksburg, Miss. A break occurred about 2 miles below Longwood, Miss. On the 4th the river remained stationary at 48.1 feet at Vicksburg, Miss. On the 5th a portion of the newly constructed levee which was built to protect Gretna from the overflow from the Ames crevasse gave away, and in a few hours the entire rear portion of the town was flooded, and much damage and inconvenience resulted. On the 6th the stage of the water at Cairo, Ill., was 44.8 feet, 4.8 feet above the danger-line. On the 10th water from the Ames crevasse broke through the rear protection levee on the Concession Plantation, 20 miles below New Orleans, and it was feared that great damage would be done

to the growing sugar crop. From the 11th to 15th the stage of the river at Memphis, Tenn., was 33.9 feet, 0.9 foot above the danger-line. Large quantities of driftwood were reported in the Red River at Shreveport, La., from the 25th to 29th. Melting snow in the mountains in north-central New Mexico and south Colorado caused the Rio Grande Del Norte River

and other streams in that region to rise rapidly at the end of the month. At El Paso, Tex., the Rio Grande River was the highest ever known at that season of the year. High water was also reported in the Brazos River in Texas. Serious damage was reported in the Chaudiere Valley, Que., by a rise in the Chaudiere River on the 18th.

MISCELLANEOUS PHENOMENA.

DROUGHT.

Very dry weather prevailed in the south Atlantic and east Gulf states. In west Maryland, and over a great part of North Carolina, the month was too dry for farming operations. In Mississippi cotton was injured, and in Louisiana all crops suffered from drought.

FOREST FIRES.

At the close of the month fires were raging in the mountains near Cumberland, Md., and extensive forest fires prevailed near Blue Knob, Reading, and Ashland, Pa., and Egg Harbor City, May's Landing, and Tom's River, N. J. Extensive forest fires near East Hampton, Long Island, had been subdued.

SUN SPOTS.

Haverford College Observatory, Pa. (observed by Prof. F. P. Leavenworth):

Date.	Number of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		Faculae.	Remarks.
	Groups.	Spots.	Groups.	Spots.	Groups.	Spots.	Groups.	Spots.		
April, 1891.										
5, 9 a. m....	0	0	0	0	0	0	1	15	2	Definition fair; 1 large spot.
6, 10 a. m....	0	0	0	0	0	0	0	1	1	Definition fair.
7, 10 a. m....	1	4	0	0	0	0	0	2	6	Definition good; 1 large spot.
8, 12 m....	0	0	0	0	0	0	1	1	1	Definition good.
9, 12 m....	1	8	0	0	0	0	0	2	9	Definition fair.
12, 3 p. m....	1	10	1	1	0	0	0	2	18	Definition fair.
13, 9 a. m....	2	5	0	0	0	0	0	3	14	Definition fair.
14, 9 a. m....	0	18	0	0	0	0	0	3	32	Definition good.
15, 9 a. m....	0	9	0	0	0	0	0	3	37	Definition good.
16, 9 a. m....	2	0	0	0	0	0	0	4	39	Definition poor.
17, 9 a. m....	0	18	0	0	0	0	0	3	40	Definition good.
19, 9 a. m....	1	2	0	0	0	0	0	3	32	Definition good.
20, 11 a. m....	0	0	1	7	0	0	0	3	32	Definition poor.
21, 10 a. m....	1	23	0	0	0	0	0	4	32	Definition good; 1 large spot.
22, 10 a. m....	1	0	0	0	0	0	0	5	36	Definition good; 2 large spots.
23, 10 a. m....	0	59	0	0	0	0	0	3	92	Definition fine; 1 large spot.
24, 10 a. m....	0	0	0	0	0	0	0	3	62	Definition fair.
25, 10 a. m....	0	0	0	0	0	0	0	3	41	Definition good.
26, 10 a. m....	2	4	1	3	0	0	0	4	34	Definition fair.
27, 10 a. m....	1	8	1	10	0	0	0	4	33	Definition fine; 2 large spots.
28, 9 a. m....	0	11	0	0	0	0	0	4	58	Definition fine; 1 large spot.
29, 9 a. m....	0	0	0	0	0	0	0	3	25	Definition fair.
30, 10 a. m....	0	0	0	0	0	0	0	3	26	Definition fine.

Mr. D. E. Hadden, Alta, Iowa: 4th, 1 group, 4 spots; large spot with umbra and penumbra on meridian; faculae by rotation on e. limb. 5th, 1 group, 2 spots. 6th, 1 group, 1 spot. 7th, 1 group, 1 spot; aurora in evening (area by rotation e. limb of faculae of 12th of March). 8th, 1 group, 1 spot. 10th, 1 group, 12 spots; group s. latitude, about 1 day w. of meridian; group faculae by rotation se. limb. 11th, 1 group, 8 spots; small group of faculae by rotation e. limb. 12th, 1 group 67 spots; small group of faculae by rotation se. limb. 14th, 1 group, 9 spots. 15th, 1 group, 10 spots; small group faculae by rotation; faculae on nw. and w. limbs disappearing by rotation. 16th, 1 group, 9 spots; faculae by rotation e. limb. 17th, 2 groups, 14 spots; new group se. 18th, 2 groups, 8 spots; group on nw. limb disappearing by rotation. 19th, 2 groups. 22d, 3 groups, 18 spots; new group 2 days in on e. limb in large area faculae; 2 large spots, with umbra and penumbra; faculae ne. by rotation 1 day in. 23d, 3 groups, 28 spots; large spot had "bridge" across it. 24th, 3 groups, 30 spots; a group disappearing by solar rotation w. 25th, 2 groups, 24 spots; group faculae by rotation on e. limb; large group very elongated. 26th, 3 groups, 23 spots; new group near meridian, n. latitude; the umbra in large spot in group s. latitude had divided into 2 portions; group with faculae on w. limb disappearing by rotation; large area faculae on e. limb. 27th, 4 groups, 26 spots; faculae by rotation on e. limb. 28th, 4 groups, 12 spots; large spot s. latitude; umbra again united. 30th, 2 groups, 6 spots.

Mr. John W. James, Riley, Ill.: 1st, 1 small spot 2 days w. of meridian in n. latitude; 1 small group 2 days w. of meridian in s. latitude. 4th to 8th and 10th, only the large spot of March 29th seen; this disappeared on w. edge, 10th. 10th, 1 new spot and 1 new group near sun's centre. 16th, 2 new groups 2 days from w. edge. 19th and 20th, none seen. 21st, 2 new spots on e. edge. 23d, 2 new groups 3 days from w. edge. 24th, immense areas of faculae near w. limb; counted 30 spots in all. 26th, part of the group of the 21st formed into 1 large spot on sun's meridian, estimated 26,450 miles in diameter. 27th, 1 new group; 1 of its spots 13,000 miles in diameter; it formed in 21 hours 3 days from w. edge, and disappeared by solar rotation on the 30th, leaving only 1 large spot visible.

Mr. H. D. Govey, North Lewisburgh, Ohio: sun spots were reported on the 1st, 5th, 7th, 8th, 12th, 16th, 17th, 21st, and 25th to 30th.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroras were reported as follows: 1st, Bar Harbor and Eastport, Me.; Berlin Mills, N. H. 3d, Somerset, Mass. 6th, Sycamore, Ill.; Glasgow, Wis. 7th, Canton, Conn.; Oswego and Riley, Ill.; Alta, Cresco, Hopeville, and Stilson, Iowa; Caldwell, Lansing, Marquette, Rockland, and Rochester, Mich.; Choteau, Mont.; Hassan, Ohio; Eagle's Mere, Pa.; Webster, S. Dak.; Embarrass, Harvey, Hayward, Meadow Valley, and Medford, Wis. 8th, New Hartford and Southington, Conn.; Amherst, Cambridge, and Florida, Mass.; Detroit, Marquette, and Sault de Ste. Marie, Mich.; Ithaca, N. Y.; Eagle's Mere and Greenville, Pa.; Block Island, R. I.; Harvey, Wis. 9th, Eastport and Kent's Hill, Me.; Hassan, Ohio. 10th, Orono,

Me.; Hassan, Ohio. 11th, Hassan, Ohio; Glasgow, Harvey, and Hayward, Wis. 12th, Leicester, Mass.; Rochester and Sault de Ste. Marie, Mich.; Demos and Hassan, Ohio; Block Island, R. I. 13th, Berlin Mills, N. H.; Grampian Hills, Pa.; Wolsey, S. Dak. 15th, Webster City, Iowa. 18th, Amherst, Mass. 22d, Sandwich, Ill. 23d, Berlin Mills, N. H. 25th, Angola, Ind. 26th, Oregon, Mo. 27th, Greenville, Pa.; Medford, Wis. 28th, Voluntown, Conn.; Sycamore, Ill.; Eastport, Farmington, Kent's Hill, and Portland, Me.; Cambridge, Mass.; Hayward and Peshtigo, Wis. Sanborn, Iowa; Greenville, Pa. On the 7th, 8th, and 28th auroras were reported over the northern part of the country from New England to Wisconsin.

Detroit, Mich., 8th: a well-defined aurora extending over

about 60° azimuth, and consisting of a diffused white light resting upon a dark bank of clouds, was observed in the north at 9.55 p. m. At 10.15 p. m. the display became more active and several broad streamers shot upward toward the zenith, and the color at the base changed to an orange shade. "Merry dancers" were observed at 10.40 p. m.; the aurora began to fade at 11.15 p. m.; and it disappeared at midnight.

Sault de Ste. Marie, Mich., 8th: an aurora consisting of a bright yellow arch, extending from w. to ne. and resting on a dark segment, was observed 8.15 p. m. The arch extended to about 20° altitude, with bright streamers; it attained its maximum brilliancy about 10.35 p. m.; and disappeared about 11.05 p. m.

THUNDER-STORMS.

Thunder-storms were reported as follows: east of the Rocky Mountains thunder-storms were reported in the greatest number of states, 30, on the 18th; in 20 to 25 on the 15th, 16th, 17th, 21st, and 22d; in 15 to 19 on the 9th, 10th, 14th, 19th, 20th, and 23d; in 10 to 14 on the 1st, 8th, 11th, 12th, 13th,

and 30th; in 5 to 9 on the 2d, 7th, 28th, and 29th; and in 1 to 4 on the 3d to 6th and 25th to 27th. There was no date for which thunder-storms were not reported east of the Rocky Mountains.

East of the Rocky Mountains thunder-storms were reported on the greatest number of dates, 23, in Mich.; on 21 in Tex.; on 15 to 20 in Ark., Fla., Ill., Iowa, Kans., Mo., and N. C.; on 10 to 14 in Ind., Minn., Miss., Nebr., N. J., Ohio, Pa., S. Dak., and Tenn.; on 5 to 9 in Ala., Conn., Ga., Ky., La., Md., Mass., N. Y., S. C., Va., Okla. T., and Wis.; and on 1 to 4 in Del., D. C., Me., Mont., N. H., N. Dak., R. I., Vt., and W. Va. West of the Rocky Mountains thunder-storms were reported in Ariz. on the 16th and 27th; in Cal. on the 6th, 7th, 13th, and 24th; in Colo. on the 14th, 18th to 20th, and 26th to 28th; in Idaho on the 16th; in Nev. on the 11th, 16th, and 18th; in N. Mex. on the 6th, 27th, 29th, and 30th; in Oregon on the 7th, 15th, 16th, and 23d; in Utah on the 15th to 20th, and 28th; in Wyo. on the 12th and 15th. In Wash. no thunder-storms were reported.

VERIFICATIONS.

[Verifications made by Assistant Professor C. F. Marvin, assisted by Mr. H. E. Williams, chief clerk of the Forecast Division.]

FORECASTS FOR 24 HOURS IN ADVANCE.

The forecasts for districts east of the Rocky Mountains for April, 1891, were made by Captain James Allen, Signal Corps, and those for the Pacific coast districts were made at San Francisco, Cal., by 2d Lieutenant John P. Finley, 19th Infantry.

Percentages of forecasts verified, April, 1891.

States.		States.	
Maine.....	78.3	Kentucky.....	79.5
New Hampshire.....	75.1	Ohio.....	82.3
Vermont.....	78.9	West Virginia.....	83.2
Massachusetts.....	84.5	Indiana.....	80.5
Rhode Island.....	80.4	Illinois.....	82.3
Connecticut.....	78.7	Lower Michigan.....	78.7
Eastern New York.....	91.5	Upper Michigan.....	82.5
Western New York.....	85.1	Wisconsin.....	88.3
Eastern Pennsylvania.....	86.7	Minnesota.....	84.1
Western Pennsylvania.....	86.3	Iowa.....	82.5
New Jersey.....	88.1	Kansas.....	83.8
Delaware.....	83.7	Nebraska.....	87.2
Maryland.....	86.1	Missouri.....	81.9
District of Columbia.....	86.5	Colorado.....	81.5
Virginia.....	86.3	North Dakota.....	79.0
North Carolina.....	79.0	South Dakota.....	79.3
South Carolina.....	85.0	Southern California*.....	92.7
Georgia.....	83.8	Northern California*.....	86.7
Eastern Florida.....	82.5	Oregon*.....	78.9
Western Florida.....	86.9	Washington*.....	81.5
Alabama.....	85.7	By elements: Weather.....	88.0
Mississippi.....	82.5	Temperature.....	74.9
Louisiana.....	81.0	Monthly percentage of weather and	
Texas.....	81.0	temperature combined.....	82.8
Arkansas.....	78.8		
Tennessee.....	76.5		

* In determining the monthly percentage of weather and temperature combined, the Pacific coast states are not included. † The forecasts of temperature in districts east of the Rocky Mountains for April, 1891, were made with reference to the maximum temperature alone; that is, a prediction of warmer or cooler indicated that the maximum temperature of the day designated would be higher or lower than the maximum of the previous day. ‡ The monthly percentage of weather and temperature combined is determined by multiplying the percentage of weather by 6, and the percentage of temperature by 4, and dividing their sum by 10.

FORECASTS FOR 48 HOURS IN ADVANCE.

Appreciating the great importance that long time predictions possess for the general public the Chief Signal Officer has authorized forecasts for 48 and 72 hours, covering the 2d

and 3d days in advance. These are optional with the forecast official, and are only made when clearly in the public interest, and cover, in all cases, considerable areas of country, and are not confined to localities.

Percentages of verifications made for second day in advance. Number of predictions made: weather, 214; temperature, 115. Percentages of verifications: weather, 93.8; temperature, 87; weather and temperature combined, 92.0.

WIND SIGNALS FOR APRIL, 1891.

Statement showing percentages of justifications of wind signals for the month of April, 1891.

Wind signals—(Ordered by Captain James Allen).—Total number of signals ordered, 91; justified as to velocity, wholly, 53, partly, 7; justified as to direction, 89. Of the signals ordered, 78 were cautionary, of which 44 were wholly and 4 partly justified; and 13 were storm signals, of which 9 were wholly and 3 partly justified. 28 signals were ordered for easterly winds, of which 26 were justified, and 63 were ordered for westerly winds, all of which were justified. Percentage of justifications, 67.0.

TEMPERATURE-FALL WARNINGS.

[Ordered by Assistant Professor T. Russell.]

Number of warnings issued, 16; justified 6. Percentage of justifications, 37.5. No cold-wave signals were ordered during the month.

Percentages of verifications of weather and temperature signals reported by directors of the various State Weather Services for April, 1891.

States.	Weather.	Temperature.	States.	Weather.	Temperature.
Illinois.....	87	71	Nebraska.....	84	94
Indiana.....	89	91	New Jersey.....	87	89
Iowa.....	88	93	New York.....	87	87
Michigan.....	87	91	North and South Dakota.....	84	92
Minnesota.....	82	86	Ohio.....	87	92
Missouri.....	89	85	Pennsylvania.....	84	88

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for April, 1891, of the directors of the various state weather services:

ALABAMA.

Temperature.—Maximum, 92, at Wiggins, 29th; minimum, 22, at Valley Head, 5th and 6th; greatest monthly range, 65, at Valley Head; least monthly range, 38, at Union Springs.

Precipitation.—Greatest monthly, 3.69, at Double Springs; least monthly, 0.83, at Bessemer.

Wind.—Prevailing direction, south.—*Prof. P. H. Mell, Auburn, director; J. M. Quarles, Private, Signal Corps, assistant.*

ARKANSAS.

Temperature.—The mean was 0.2 above the normal; maximum, 93, at Lead Hill, 30th; minimum, 22, at Fayetteville, 5th; greatest monthly range, 65, at Lead Hill; least monthly range, 36, at El Dorado.

Precipitation.—The average was 1.87 below the normal; greatest monthly, 4.90, at Ozark; least monthly, 0.41, at Devall's Bluff.

Wind.—Prevailing direction, south.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Sergeant, Signal Corps, assistant.*

COLORADO.

Temperature.—Maximum, 92, at Lamar, 25th, and at Las Animas, 29th; minimum, —35, at Breckenridge, 2d; greatest monthly range, 103, at Breckenridge; least monthly range, 62, at Climax.

Precipitation.—The average was generally below the normal; greatest monthly, 4.81, at Leslie; least monthly, trace, at Waterville and Aroya.

Wind.—Prevailing direction, northwest.—*W. S. Miller, Sergeant, Signal Corps, Denver, assistant.*

ILLINOIS.

Temperature.—The mean was 2.0 above the normal of the last 16 years; maximum, 90, at Flora, 21st; minimum, 17, at Aurora, 5th.

Precipitation.—The average was 0.02 below the normal of the last 16 years; greatest monthly, 5.08, at Keokuk, Iowa; least monthly, 1.35, at Martinsville.

Wind.—Prevailing direction, northwest.—*John Craig, Sergeant, Signal Corps, Springfield, in charge.*

INDIANA.

Temperature.—Maximum, 90, at Huntingburgh, 21st and 22d; minimum, 19, at Delphi, 3d; greatest monthly range, 67, at Rockville; least monthly range, 51, at Columbia City.

Precipitation.—Greatest monthly, 5.25, at Huntingburgh; least monthly, 0.15, at Princeton.

Wind.—Prevailing direction, northeast.—*Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Sergeant, Signal Corps, assistant.*

IOWA WEATHER AND CROP SERVICE.

Temperature.—The mean was 2.0 above the normal, and was the warmest April in the last decade, except 1890; maximum, 93, at Sioux City, 29th; minimum, 13, at Larrabee, 4th; greatest monthly range, 77, at Sioux City; least monthly range, 53, at Fort Madison.

Precipitation.—Greatest monthly, 5.06, at Keokuk; least monthly, 0.59, at Webster City.

Wind.—Prevailing direction, northwest.—*J. R. Sage, Des Moines, director; G. M. Chappel, Observer, Signal Service, assistant.*

KANSAS.

Temperature.—Maximum, 101, at Eureka Ranch, 29th; minimum, 13, at Eureka Ranch, 4th; greatest monthly range, 88, at Eureka Ranch; least monthly range, 55, at Morso.

Precipitation.—Greatest monthly, 6.75, at Marmaton; least monthly, 0.25, at Macksville.

Wind.—Prevailing direction, southeast.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Sergeant, Signal Corps, assistant.*

KENTUCKY.

Temperature.—The mean was about 2.0 above the normal; maximum, 92, at Frankfort, 17th; minimum, 24, at Middlesborough, 6th; greatest monthly range, 68, at Frankfort; least monthly range, 53, at Canton.

Precipitation.—The average was about 2.00 below the normal; greatest monthly, 3.70, at Canton; least monthly, 1.66, at Mount Sterling.

Wind.—Prevailing direction, south.—*Dr. E. A. Grant, Louisville, director; Frank Burke, Sergeant, Signal Corps, assistant.*

LOUISIANA.

Temperature.—Maximum, 90, at Liberty Hill, 30th, at Cheneyville, 20th, 26th, and 27th, at Plaquemine, 27th, 29th, and 30th, and at Jeanerette, 29th; minimum, 25, at Plaquemine, 5th and 6th; greatest monthly range, 65, at Plaquemine; least monthly range, 37, at Port Eads.

Precipitation.—The average was 3.86 below the normal; greatest monthly, 5.09, at Davis; least monthly, 0.00, at Jackson Barracks and Houma.

Wind.—Prevailing direction, south.—*George E. Hunt, Sergeant, Signal Corps, New Orleans, in charge.*

MICHIGAN.

Temperature.—The mean was 2.7 above the normal; maximum, 87, at Marquette, 26th; minimum, 1, at Gaylord, 5th; greatest monthly range, 79, at Crystal Falls; least monthly range, 48, at Ball Mountain.

Precipitation.—The average was 0.30 below the normal; greatest monthly, 3.65, at Saint Ignace; least monthly, 0.35, at Crystal Falls.

Wind.—Prevailing direction, southwest.—*N. B. Conger, Sergeant, Signal Corps, Lansing, director.*

MINNESOTA.

Temperature.—The mean was about 4.0 above the normal; maximum, 90, at Montevideo, 29th; minimum, 0 (zero), at Leech Lake and Pine River Dam, 4th; greatest monthly range, 83, at Crookston and Leech Lake; least monthly range, 62, at Farmington.

Precipitation.—The average was about normal; greatest monthly, 3.40, at Saint Charles; least monthly, 0.94, at Leech Lake.

Wind.—Prevailing direction, northwest.—*John Healy, Sergeant, Signal Corps, Minneapolis, in charge.*

MISSISSIPPI.

Temperature.—The mean was 0.3 below the normal; maximum, 93, at Vaiden, 20th and 27th; minimum, 25, at Louisville, 5th, and at Vaiden, 6th; greatest monthly range, 68, at Vaiden; least monthly range, 40, at Bay Saint Louis.

Precipitation.—The average was 2.99 below the normal; greatest monthly, 5.99, at Water Valley; least monthly, 1.18, at Pontotoc.—*R. B. Fulton, Signal Corps, University, director.*

MISSOURI.

Temperature.—The mean was about 1.5 above the normal; maximum, 88, at Oak Ridge, 19th, and at Liberty, 26th; minimum 15, at Adrian, 4th; greatest monthly range, 69, at Adrian; least monthly range, 46, at Hermann.

Precipitation.—The average was 0.75 above the normal; greatest monthly, 9.50, at Austin; least monthly, 1.10, at New Haven.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; A. L. McRae, Sergeant, Signal Corps, assistant.*

NEBRASKA.

Temperature.—Maximum, 96, at Minden; minimum, 10, at Long Pine.

Precipitation.—Greatest monthly, 6.08, at Oakdale; least monthly, 1.10, at West Point.—*Prof. Goodwin D. Swozey, Crete, director; G. A. Loveland, Sergeant, Signal Corps, assistant.*

NEVADA.

The characteristics of the month were the cool weather and the great amount of precipitation.

Temperature.—The mean was 3.0 below the normal; maximum, 88, at Yount's Ranch, 29th and 30th; minimum, 5, at Elv, 8th; greatest monthly range, 74, at Pioche; least monthly range, 46, at Mill City.

Precipitation.—The average was 0.70 above the normal; greatest monthly, 2.73, at Palmetto; least monthly, 0.51, at Pioche.

Wind.—Prevailing direction, north.—*Prof. Charles W. Friend, Carson City, director; D. C. Grunow, Corporal, Signal Corps, assistant.*

NEW ENGLAND METEOROLOGICAL SOCIETY.

Temperature.—The mean was 2.5 above the normal; maximum, 84, at Lawrence, 27th; minimum, 2, at West Milan, 6th; greatest monthly range, 74, at Berlin Mills and West Milan; least monthly range, 34, at Eastport.

Precipitation.—The average was 0.42 below the normal; greatest monthly, 5.05, at New Hartford; least monthly, 1.19, at Block Island.

Wind.—Prevailing direction, northwest.—*Prof. William H. Niles, Boston, Mass., president; Prof. Winslow Upton, Providence, R. I., secretary; J. Warren Smith, Private, Signal Corps, assistant.*

NEW JERSEY.

Temperature.—The mean was 4.1 above the normal; maximum, 88, at Camden, 15th; minimum, 20, at Dover, 7th, at Tenafly, 7th and 9th, and at Hanover and Allaire, 8th; greatest monthly range, 66, at Tenafly; least monthly range, 48, at Newark.

Precipitation.—The average was 1.28 below the normal; greatest monthly, 3.80, at South Orange; least monthly, 1.39, at Lambertville.

Wind.—Prevailing direction, northwest.—*E. W. McGann, Sergeant, Signal Corps, New Brunswick, in charge.*

NEW YORK.

Temperature.—Maximum, 86, at Geneva, 30th; minimum, 7, at Number Four, 6th; greatest monthly range, 71, at Wedgewood; least monthly range, 44, at Plattsburgh Barracks.

Precipitation.—Greatest monthly, 4.37, at Malone; least monthly, 0.66, at Dunkirk.

Wind.—Prevailing direction, northwest.—*Prof. E. A. Fierstein, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Private, Signal Corps, assistant.*

NORTH CAROLINA.

The month has been rather dry and generally unfavorable for crops.

Temperature.—The mean was 1.2 above the normal; maximum, 89, at Willetton, 17th, and at Southern Pines, 20th; minimum, 20, at Franklin, 5th; greatest monthly range, 68, at Franklin; least monthly range, 46, at Wilmington.

Precipitation.—The average was 1.78 below the normal; greatest monthly, 4.80, at Littleton; least monthly, 1.10, at Franklin.

Wind.—Prevailing direction, south.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Sergeant, Signal Corps, assistant.*

NORTH AND SOUTH DAKOTA.

Temperature.—The mean was about 6.0 above the normal; maximum, 102,

at Oelrichs, S. Dak., 28th; minimum, 4, at Napoleon, N. Dak., 3d; greatest monthly, range, 90, at Oelrichs, S. Dak.; least monthly range, 59, at De Smet, S. Dak.

Precipitation.—The average was about normal; greatest monthly, 4.26, at Alexandria, S. Dak.; least monthly, 1.68, at Wild Rice, N. Dak.

Wind.—Prevailing direction, northwest.—*S. W. Glenn, Sergeant, Signal Corps, Huron, S. Dak., in charge.*

OHIO.

Temperature.—The mean was 2.0 above the normal; maximum, 95, at Portsmouth, and was the highest maximum on record for April since the opening of the Bureau; minimum, 15, at Hiram, 5th and 6th.

Precipitation.—The average was 0.57 below the normal; greatest monthly, 4.86, at West Milton; least monthly, 0.48, at Weymouth.

Wind.—Prevailing direction, southwest.—*Prof. B. F. Thomas, Columbus, director; C. M. Strong, Sergeant, Signal Corps, secretary and assistant.*

OREGON.

Temperature.—The mean was 0.3 below the normal; maximum, 83, at Grant's Pass, 30th; minimum, 14, at Joseph and Beulah, 1st.

Precipitation.—The average was 0.94 above the normal; greatest monthly, 11.35, at Bandon; least monthly, 0.01, at The Dalles.

Wind.—Prevailing direction, southwest.—*Hon. H. E. Hayes, Master State Grange, Oswego, director; B. S. Pague, Sergeant, Signal Corps, assistant.*

PENNSYLVANIA.

Temperature.—The mean was 3.0 above the normal; maximum, 87, at Carlisle, 30th, and at Lewisburgh, 27th; minimum, 11, at Greenville, 5th; greatest monthly range, 68, at Greenville and Uniontown; least monthly range, 53, at Philadelphia.

Precipitation.—The average was about 0.75 below the normal; greatest monthly, 3.54, at Girardville; least monthly, 1.12, at Wellsborough.

Wind.—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; T. F. Townsend, observer, Signal Service, assistant.*

SOUTH CAROLINA.

Temperature.—Maximum, 92, at Winnsborough, 19th; minimum, 26, at Evergreen, 6th.

Precipitation.—Greatest monthly, 2.63, at Evergreen; least monthly, 0.84, at Brewer Mine.

Wind.—Prevailing direction, southwest.—*A. P. Butler, director, State Weather Service, and observer, Signal Service.*

TENNESSEE.

The month was unfavorable for farming operations.

Temperature.—The mean was slightly above the normal; maximum, 90, at Hohenwald, 17th and 21st, and at Sparta, 20th; minimum, 24, at Johnson City, 8th; greatest monthly range, 62, at Johnson City, Northville, and Hohenwald; least monthly range, 42, at Bolivar.

Precipitation.—The average was slightly below the normal; greatest monthly, 6.95, at Bolivar; least monthly, 0.81, at Parksville.

Wind.—Prevailing directions, south and west.—*J. D. Plunket, M. D., Nashville, director; H. C. Bate, Signal Corps, assistant.*

TEXAS.

Temperature.—The mean was slightly above the normal over the extreme west portion of the state; in other portions it averaged 1.0 to 2.0 below, except over the Rio Grande Valley, where the deficiency amounted to 4.0; maximum, 95, at College Station 23d; minimum, 22, at Panhandle, 4th; greatest monthly range, 67, at Wichita Falls; least monthly range, 32, at Galveston.

Precipitation.—The average was below the normal along the Gulf coast and in the northwest; elsewhere there was an excess; greatest monthly, 13.84, at Gallinas; least monthly, 0.00, at El Paso.—*D. D. Bryan, Galveston, director; I. M. Cline, Sergeant, Signal Corps, assistant.*

WISCONSIN.

Temperature.—The mean was 2.5 above the normal; maximum, 84, at Black River Falls, Menomonie, and Wausau, 26th, and Prairie du Chien, 25th and 26th; minimum, —5, at Hayward, 4th.

Precipitation.—The average was 0.60 below the normal; greatest monthly, 3.81, at Beloit; least monthly, 0.43, at Rhinelander.

Wind.—Prevailing direction, northeast.—*R. E. Kerkam, Milwaukee, Sergeant, Signal Corps, in charge.*

Meteorological record of Army post surgeons, voluntary, and other co-operating observers, April, 1891.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Alabama.	0	0	0	Ins.	Alabama—Cont'd.	0	0	0	Ins.
Bermuda f.....	87	27	63.0	1.07	Cordova f.....	88	30	63.2	1.31
Beaumer f.....	88	32	61.4	0.83	Decatur (1) f.....	85	30	63.2	3.64
Brewton f.....	80	26	63.8	1.65	Double Springs f.....	85	30	63.2	3.64
Chapultepec f.....	89	30	56.7	.....	Florence f.....	85	30	63.2	4.43
Childersburgh f.....	88	29	67.6	0.92	Gadsden f.....	88	30	66.5	1.90
Citronelle f.....	88	29	67.6	0.92	Greensborough f.....	88	30	66.5	1.75
Claiborne Landing f.....	89	25	63.8	2.32	Guntersville f.....	85	30	61.3	1.05
Columbiana f.....	89	25	63.8	2.32	Jasper f.....	85	29	59.5	1.91

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Alabama—Cont'd.	0	0	0	Ins.	California—Cont'd.	0	0	0	Ins.
Livingston (1) * f.....	87	30	63.1	1.94	Benicia Barracks.....	82	41	56.2	2.17
Mountain Home.....	88	24	60.0	3.94	Berendo *.....	86	40	58.8	1.26
Mt. Vernon B'ks.....	87	31	65.0	2.01	Berkeley.....	79	41	52.3	3.42
Talladega.....	.....	.....	.....	0.93	Bishop Creek.....	88	38	61.8	0.00
Tallassee Falls.....	.....	.....	.....	1.87	Boca *.....	78	12	41.4	1.70
Tuscaloosa.....	.....	.....	.....	1.70	Borden *.....	90	46	62.0	0.69
Tusculum (1) f.....	85	32	60.9	2.19	Boulder Creek.....	98	32	53.8	6.81
Union Springs.....	74	36	65.0	1.96	Brentwood.....	87	43	58.1	1.55
Uniontown f.....	85	30	64.5	1.78	Brighton *.....	89	45	57.8	1.69
Valley Head f.....	87	22	59.0	2.52	Byron *.....	80	48	62.2	1.04
Warrior f.....	.....	.....	.....	1.59	Caliente.....	92	37	59.6	1.60
Wiggins f.....	92	28	72.0	2.92	Calistoga.....	84	42	54.7	3.20
Alaska.	.....	.....	.....	.....	Castroville *.....	75	47	59.1	3.14
Juneau.....	60	30	42.2	6.32	Centerville *.....	90	50	59.9	2.23
Killsnoo.....	55	33	39.3	5.95	Chico *.....	90	44	60.9	1.78
Arizona.	.....	.....	.....	.....	Ciaco *.....	55	20	36.4	3.70
Aris. Canal Co. Dam.....	103	40	66.9	0.00	Colfax *.....	84	34	48.2	2.45
Bisbee.....	83	40	59.1	0.00	Colton *.....	92	38	57.7	0.80
Buckeye.....	.....	.....	.....	T.	Corning.....	95	36	59.0	2.13
Calabasas.....	.....	.....	.....	0.00	Crescent City.....	.....	.....	.....	9.38
Casa Grande *.....	101	50	66.6	0.00	Daviaville *.....	86	49	63.7	1.68
Chino *.....	98	28	58.0	0.02	Delano *.....	92	42	62.4	0.27
Chloride.....	92m	30m	56.0m	0.94	Delta *.....	89	35	57.8	8.95
Cooleys.....	79	20	46.8	0.12	Downey *.....	86	50	64.3	0.62
Dragoon f.....	.....	.....	.....	0.00	Dunnigan.....	82	39	57.0	2.09
Dragoon Summit *.....	87	48	66.3	0.00	El Dorado *.....	85	42	55.2	3.52
Dos Cabezas f.....	.....	.....	.....	0.00	El Verano *.....	81	42	57.7	2.86
Dudleyville.....	.....	.....	.....	0.01	Emigrant Gap *.....	72	24	42.3	3.15
Eagle Pass.....	.....	.....	.....	0.00	Esparto *.....	82	43	61.7	2.14
Farley's Camp.....	.....	.....	.....	0.10	Evergreen.....	.....	.....	.....	1.96
Florence.....	101	34	64.8	T.	Farmington *.....	90	45	60.0	1.65
Fort Apache.....	84	10	48.1	T.	Felton *.....	91	35	57.7	4.07
Fort Bowie.....	82	38	59.4	0.00	Fernando *.....	90	43	66.1	0.96
Fort Grant.....	83	37	59.0	0.00	Florence *.....	81	48	61.0	0.96
Fort Huachuca.....	84	40	45.9	0.00	Folsom.....	83	48	60.9	2.29
Fort Mojave.....	104	42	62.2	0.26	Fort Bidwell.....	74	26	47.0	1.39
Gila Bend (1) *.....	94	52	71.5	.....	Fort Gaston.....	84	34	52.6	6.19
Gila Bend (2) *.....	103	50	72.0	0.03	Fort Mason.....	75	38	52.6	2.91
Grand Central Mill.....	.....	.....	.....	0.00	Fruto *.....	86	42	60.3	3.42
Holbrook f.....	94	23	51.9	0.00	Galt.....	85	48	63.1	1.42
Maricopa (1) *.....	108	54	70.8	0.01	Georgetown f.....	77	32	51.2	3.79
Mount Huachuca.....	84	33	59.0	T.	Gilroy *.....	83	42	58.0	2.18
Natural Bridge f.....	.....	.....	.....	0.60	Girard *.....	78	36	51.9	1.10
Oro.....	.....	.....	.....	0.00	Goshen.....	90	35	59.2	0.32
Pantano *.....	95	48	66.6	0.00	Grass Valley.....	.....	.....	.....	2.98
Payson.....	.....	.....	.....	0.00	Haywards *.....	72	46	56.1	2.21
Red Rock.....	.....	.....	.....	0.00	Hollister *.....	90	43	60.7	2.01
San Carlos.....	102	31	63.6	0.00	Hornbrook.....	76	38	56.8	0.90
Show Low f.....	.....	.....	.....	0.20	Hydesville.....	78	34	52.2	5.01
Signal f.....	97	38	64.8	0.12	Indio.....	107	50	71.9	0.00
Simmons.....	.....	.....	.....	T.	Ione.....	80	42	58.7	2.11
Teviston.....	.....	.....	.....	0.00	Iowa Hill *.....	85	35	52.6	3.55
Tip Top f.....	.....	.....	.....	0.18	Jolon.....	93	.....	.....	0.94
Tucson (1) f.....	98	38	66.2	0.00	Julian f.....	83	30	52.3	2.66
Tucson (2) *.....	96	55	71.5	0.00	Keene.....	80	38	53.4	1.30
Walnut Grove.....	.....	.....	.....	0.00	Kingsburgh *.....	90	40	60.0	0.39
Whipple Barracks.....	85	23	51.4	T.	King City.....	90	30	51.2	0.76
Willcox *.....	94	38	64.6	0.00	Knight's Landing.....	84	40	55.8	3.16
Wilcox.....	.....	.....	.....	0.00	Lathrop *.....	82	38	61.2	1.67
Woodruff.....	.....	.....	.....	0.00	Laurel.....	88	33	56.4	2.85
Yuma.....	100	56	72.2	0.00	Lemoore.....	88	40	62.5	0.84
Arkansas.	.....	.....	.....	.....	Livingston.....	92	43	60.3	1.80
Arkadelphia f.....	.....	.....	.....	5.40	Long Beach.....	85	48	59.8	.....
Arkansas City f.....	.....	.....	.....	1.38	Los Angeles.....	87	49	61.6	1.32
Brinkley.....	83	31	62.6	1.09	Los Banos.....	82	40	61.8	1.04
Camden f.....	82	31	63.2	2.69	Los Gatos (1).....	84	42	58.2	3.20
Conway.....	81	32	62.2	2.66	Los Gatos (2).....	82	38	53.4	3.13
Dallas.....	85	27	61.9	2.84	Mammoth Tank.....	104	56	77.1	0.00
Dardanelle.....	.....	.....	.....	2.85	Martinez.....	76	40	53.1	1.92
Deval's Bluff.....	86	29	64.6	0.41	Marysville.....	90	46	64.3	1.52
El Dorado.....	82	46	66.4	1.15	Menlo Park.....	80	43	56.1	1.83
Fayetteville *.....	83	32	59.7	2.70	Milton (near).....	82	41	59.0	2.70
Forrest City f.....	86	38	66.6	2.49	Modesto.....	90	45	65.3	1.01
Fulton f.....	.....	.....	.....	2.37	Mojave.....	95	40	60.5	0.36
Harrisburgh.....	82	31	61.9	3.86	Monson *.....	87	41	60.7	0.91
Helena (2).....	88	36	64.6	2.29	Montague *.....	74	40	51.2	0.45
Hot Springs.....	81	26	60.3	3.32	Monterey *.....	72	36	54.3	2.36
Lead Hill.....	93	28	61.4	3.71	Monterey (Hotel del Monte).....	70	40	65.0	0.00
Lonoke.....	83	33	66.3	1.12	Napa City.....	90	41	54.1	3.54
Malvern.....	.....	.....	.....	3.70	National City.....	86	40	59.5	1.27
Mount Nebo.....	81	24	60.3	2.66	Newark.....	80	44	56.8	2.11
Newport (1) f.....	87	40	63.6	2.76	Newhall *.....	92	42	59.2	1.26
Newport (2).....	87	40	63.6	2.76	Newman *.....	85	51	66.5	1.55
Oseola.....	84	32	60.8	2.87	Niles.....	82	45	60.3	2.34
Ozone.....	83	24	59.8	4.90	Norwalk.....	92	49	62.6	1.19
Paragould m.....	88	29	61.2	2.00	Oakland (1).....	80	40	53.4	2.77
Pine Bluff.....	86	30	63.4	1.67	Oakland (2) *.....	70	48	56.5	2.62
Rogers f.....	85	34	59.9	4.03	Ontario.....	85	50	62.3	1.78
Stuttgart.....	85	31	63.8	1.80	Orland.....	92	49	62.2	1.38
Texarkana.....	88	40	64.6	4.42	Pajaro *.....	82	38	53.8	2.44
Winslow.....	79	24	59.4	3.04	Palermo f.....	83	40	59.1	1.41
California.	.....	.....	.....	.....	Paso Robles *.....	88	38	63.3	1.72
Alcalde.....	91	44	61.0	0.00	Petaluma.....	85	40	56.3	2.30
Alcatraz Island.....	70	40	52.8	2.42	Placerville (1) *.....	85	36	53.4	3.62
Almaden.....	82	45	56.2	1.82	Placerville (2) *.....	78	29	50.4	4.29
Anaheim.....	86	50	62.7	1.81	Pleasanton.....	81	43	57.7	.....
Angel Island.....	80	40	54.2	2.32	Pomona.....	95	46	62.9	1.42
Antioch.....	81	48	63.0	1.14	Portersville *.....	93	47	62.6	1.14
Aplos.....	75	38	55.5	2.04	Presidio of San F.....	79	39	52.4	3.00
Athlone.....	93	42	60.7	1.39	Puente.....	88	52	62.5	0.45
Burnaby.....	82	42	55.0	2.23	Ravenna *.....	96	31	58.1	0.85
Bakersfield *.....	88	46	64.5	0.27	Red Bluff.....	90	39	56.2	2.09
Barstow.....	86	36	59.4	0.05	Redding.....	90	40	61.3	2.31
Beaumont.....	92	44	61.9	1.72	Riverside.....	91	47	57.8	1.04
Belmont.....	83	46	58.6	0.00	.....	.....	.....	.....	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
California—Cont'd.					Colorado—Cont'd.				
Rocklin	86	45	61.8	1.65	Fort Lewis	69	3	38.6	3.30
Humsey	96	43	61.7	1.92	Fort Logan	85	4	47.5	2.60
Sacramento (1)	80	36	54.4	1.75	Fruita	89	24	55.3	0.10
Sacramento (2)	80	48	60.2	1.62	Georgetown	73	8	39.2	2.25
Sacramento (3)	79	48	59.6	1.62	Greenhorn	86	8	47.8	0.58
Salinas (1)	78	40	52.4	2.55	Haxtum	73	24	45.0	1.53
Salinas (2)	64	44	53.1	2.93	Hugo	78	24	45.0	1.53
Salton	105	50	73.0	0.00	Husted	80	0	45.1	2.08
Sanger Junction	97	40	64.0	0.30	Idaho Springs	74	3	39.8	1.55
San Ardo	97	37	57.7	1.04	Jefferson	58	0	26.6	0.64
San Diego B'ks	76	43	59.0	0.68	Julesburg	84	21	48.6	2.27
San Gabriel	90	49	63.6	0.47	Kirk	73	15	50.4	0.19
San Jose	83	44	55.4	1.79	Kit Carson	92	15	50.4	0.19
San Mateo	80	44	55.4	1.95	Lamar	92	22	48.2	1.16
San Miguel	87	40	56.4	0.69	La Porte	92	22	48.2	1.16
San Pedro	88	46	62.1	0.67	Las Animas	92	18	53.2	0.53
Santa Ana	86	50	61.9	0.37	Lay	91	—	—	0.53
Santa Barbara (1)	78	42	56.3	1.57	Leadville	61	—3	31.4	1.92
Santa Barbara (2)	73	48	58.5	1.90	Le Roy	87	19	47.6	1.35
Santa Clara	81	39	55.0	2.43	Monte Vista (1)	88	30	54.5	0.50
Santa Cruz (1)	73	39	55.0	2.88	Meeker	77	10	46.4	1.22
Santa Cruz (2)	78	30	54.7	2.57	Minneapolis	77	10	46.4	1.22
Santa Margarita	80	30	50.4	1.80	Monte Vista (2)	74	10	41.2	0.35
Santa Maria	74	46	62.6	0.90	Monte Vista (3)	76	16	41.1	0.20
Santa Monica	74	46	62.6	0.90	Moraine	69	—1	37.6	1.80
Santa Paula	88	46	65.0	0.82	Paradox	77	3	42.0	0.39
Santa Rosa	79	38	54.3	2.39	Pagoda (near)	77	3	42.0	0.39
Selma	89	38	57.9	0.47	Pagosa Springs	74	5	38.6	0.94
Seven Palms	109	58	76.3	0.00	Parachute	74	5	38.6	0.94
Shingle Springs	85	40	59.7	3.80	Red Cliff	74	5	38.6	0.94
Sims	82	25	53.7	0.03	Rico	74	5	38.6	0.94
Soledad	88	40	56.3	1.40	River Bend	90	20	50.1	0.43
Sonoma	88	40	56.1	3.71	Rocky Ford	90	15	51.1	0.43
Soquel	82	40	58.3	0.00	Saint Cloud	90	15	51.1	0.43
South Vallejo	74	47	56.0	2.52	Sanborn	77	—	—	1.02
Spadra	59	44	50.1	1.23	San Luis	78	2	43.6	0.64
Steeles	79	38	55.6	1.71	Sedgwick	78	2	43.6	0.64
Summit	54	22	34.9	4.60	Sheridan Lake	90	23	51.0	1.70
Suisun City	90	46	58.4	0.90	Smoky Hill Mine	76	5	41.0	1.68
Susunville	73	31	48.5	0.80	Springfield	76	5	41.0	1.68
Tehachapi	70	32	49.4	0.90	Stamford	76	5	41.0	1.68
Tehama	88	45	63.1	2.36	Stunner	74	—8	32.4	0.76
Templeton	90	38	57.8	1.67	T. S. Ranch	80	16	49.1	0.25
Towles	74	34	51.3	2.39	Thon	90	6	47.3	1.27
Tracy	85	50	64.9	1.54	Villas	90	6	47.3	1.27
Traver	90	45	64.4	0.67	Villa Grove	90	6	47.3	1.27
Tropico	85	42	61.5	1.98	Ward District	90	6	47.3	1.27
Truckee (1)	73	20	40.8	2.17	Waterville	90	6	47.3	1.27
Tulare	92	46	63.7	0.69	Watkins	90	6	47.3	1.27
Turlock	87	45	62.0	1.18	Yuma	90	6	47.3	1.27
Upper Mattole	83	38	55.9	11.22	Connecticut	90	6	47.3	1.27
Vacaville (1)	88	43	57.8	2.13	Canton	79	15	47.2	3.91
Vacaville (2)	90	47	60.5	1.88	Colchester	79	15	47.2	3.91
Ventura	90	47	60.5	1.88	Falls Village	79	15	47.2	3.91
Valley Springs	88	43	58.3	0.95	Fort Trumbull	77	24	49.9	4.62
Vina	89	47	60.3	0.06	Hartford (1)	81	24	49.6	2.86
Volcano Springs	112	55	76.0	0.00	Hartford (2)	81	24	49.6	2.86
Volta	88	49	61.4	1.41	Lake Konomoc	81	24	49.6	2.86
Walla Walla Ck.	74	26	47.8	1.11	Lebanon	81	24	49.6	2.86
Walnut Creek	91	42	58.1	2.24	Mansfield	77	20	46.1	3.51
Westley	84	50	64.5	1.31	Middletown	80	24	48.9	3.90
Wheatland	88	41	57.1	1.72	New Hartford (1)	76	19	41.8	3.27
Whittier	90	48	65.6	0.85	New Hartford (2)	76	19	41.8	3.27
Williams	90	48	65.6	0.85	Newington	77	22	48.3	3.58
Willow (1)	83	36	64.2	1.37	N. Grosvenor Dale	77	22	48.3	3.58
Willow (2)	89	30	54.5	1.88	North Woodstock	77	22	48.3	3.58
Winters	87	50	64.3	2.05	Norwalk	706	328	49.4	0.80
Woodland	74	43	57.1	1.17	Southampton	78	24	48.6	3.16
Yreka	77	25	51.0	0.93	South Manchester	78	24	48.6	3.16
Colorado.					Stevenson	76	20	45.4	2.86
Abbott	86	28	52.9	0.87	Thompson	76	20	45.4	2.86
Agate	89	17	47.8	2.08	Uncasville	77	22	47.5	5.31
Akron	59	11	27.5	0.50	Voluntown	77	22	47.5	5.31
Alma	72	18	44.0	0.30	Wallingford	77	22	47.5	5.31
Amherst	58	20	44.8	0.30	Waterbury	77	22	47.5	5.31
Antonito	72	18	44.0	0.30	West Simsbury	77	22	47.5	5.31
Apishapa	58	20	44.8	0.30	Delaware	77	22	47.5	5.31
Arboles	72	18	44.0	0.30	Dover	85	30	57.3	3.34
Aroya	72	18	44.0	0.30	Kirkwood	82	30	54.9	2.62
Asher	78	18	45.8	0.80	District of Columbia	78	31	56.8	2.62
Beaver Creek	90	28	43.2	1.17	Kendall Green	85	30	56.5	2.15
Bennet	90	28	43.2	1.17	Washington B'ks	85	30	56.5	2.15
Box Elder	90	28	43.2	1.17	Florida	85	30	56.5	2.15
Brandon	90	28	43.2	1.17	Alva	90	20	68.5	3.14
Breckenridge	68	35	24.2	1.70	Archer	90	20	68.5	3.14
Brush	68	35	24.2	1.70	Duke	91	27	64.8	3.47
Burlington	64	9	35.3	2.05	Eustis	91	27	64.8	3.47
Byers	78	16	42.4	1.02	Fort Barrancas	90	28	68.3	4.00
Canon City	85	18	53.2	0.74	Fort Meade	81	36	59.5	3.29
Canon	87	27	55.7	1.33	Homeland	88	32	70.1	2.25
Carlson	84	3	44.4	1.73	Hypoluxo	89	32	73.7	4.10
Castle Rock	85	23	49.4	2.00	Lake City	90	32	68.8	1.56
Cheyenne Wells	86	4	34.6	0.45	Merritt's Island	86	40	70.3	7.50
Chromo	51	—1	24.4	1.95	Ocala	87	41	67.5	0.50
Climax	62	—6	27.5	0.89	Orange City	93	30	67.9	7.05
Como (near)	53	—8	29.0	0.90	Pasadena	91	35	67.9	3.99
Cumbres	78	29	45.9	0.74	St. Francis B'ks	93	35	66.4	3.37
Del Norte	86	30	45.9	1.60	San Antonio	97	34	69.3	2.45
Dear Trail	86	13	48.7	0.31	Tallahassee	97	34	69.3	2.45
Delta	86	13	48.7	0.31	Tarpon Springs	91	37	69.2	3.53
Dillon	86	13	48.7	0.31	Georgia	91	37	69.2	3.53
Dumont	86	13	48.7	0.31	Athens (1)	84	28	63.2	2.08
East Dale	86	13	48.7	0.31	Blakely	84	28	63.2	2.08
Elkhorn	86	13	48.7	0.31	Butler	86	31	63.1	1.22
First View	82	13	46.6	2.30	Elberton	86	31	63.1	1.22
Fort Collins	82	13	46.6	2.30					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Georgia—Cont'd.</i>					<i>Indian Territory.</i>				
Forsyth*	87	35	66.5	1.45	Eufaula	89	17	58.4	2.40
Gillsville	83	31	63.5	1.26	Fort Supply	89	17	58.4	0.27
Hephzibah	83	36	67.8	T.	South McAlester.	92	44	—	3.48
Louisville	92	39	66.3	0.25	Tulsa†	—	—	—	5.15
Marietta†	85	26	60.3	1.35	Woodward	—	—	—	0.27
Milledgeville*†	84	31	61.9	0.40	Wynne Wood	84	27	58.1	2.80
Monticello	—	32	62.6	1.60	<i>Iowa.</i>				
Point Peter*	—	28	59.8	1.65	Alta (1)*	85	18	48.8	2.12
Poulan	91	30	65.4	2.21	Alta (2)	80	18	47.1	2.12
Quitman (1)	88	32	67.1	1.85	Amarna†	82	20	50.8	1.51
Rome†	—	—	—	2.53	Ames	85	21	50.7	1.71
<i>Idaho.</i>					Atlantic	84	19	50.8	2.21
American Falls†	76	16	44.9	1.25	Audubon	—	—	—	2.06
Boise Barracks	85	24	51.6	0.44	Bancroft	83	12	47.7	1.02
Bonanza	63	3	35.4	0.29	Bedford†	—	—	—	3.18
Era†	72	11	37.4	0.33	Belle Plaine*	80	21	50.6	2.62
Fort Sherman	75	22	48.4	2.50	Blakeville	84	20	50.4	2.51
Henry's Lake	77	14	37.5	0.07	Bonaparte*	80	51	64.7	3.30
Kootenai	77	25	46.0	0.15	Carroll†	85	17	50.4	0.92
Lewiston	81	30	54.0	0.47	Cedar Falls†	81	19	49.4	1.32
Mullan*	73	25	41.1	1.99	Cedar Rapids†	79	20	51.1	1.63
Payette†	89	23	53.9	0.23	Charles City	—	—	—	1.75
Ruthburg	82	35	51.9	1.2	Clarinda*	84	26	54.1	4.17
<i>Illinois.</i>					Clinton	80	20	51.4	2.83
Alton	—	—	—	2.22	Cordova	—	—	—	3.01
Aurora (1)†	76	17	47.8	3.94	Cresco	79	17	46.7	2.28
Aurora (2)	78	18	49.6	4.92	Dallas Centre*	—	20	50.9	1.85
Beardstown†	—	—	—	3.97	Denison	96	18	53.6	2.64
Beason	81	26	52.4	3.43	Des Moines	85	18	52.8	2.42
Belvidere	75	21	48.1	3.73	Eagle Grove	—	20	48.9	2.80
Carlinville*	83	29	53.6	2.08	Fairfield†	81	22	51.6	2.18
Centralia	87	30	58.0	1.88	Fayette	81	18	47.4	2.22
Charleston	81	22	55.5	2.51	Fontanelle	—	—	—	2.71
Collinsville	83	28	57.1	2.17	Fort Madison*	78	25	55.9	2.59
Cockrell	83	20	50.0	2.07	Glenwood (1)	90	18	55.4	3.21
East Peoria	83	25	55.4	3.80	Grand Meadow d.	78	15	48.5	1.63
Flora	90	27	58.0	1.49	Greenfield	84	18	51.2	2.86
Fort Sheridan	77	20	46.8	4.39	Grinnell†	76	22	50.6	1.65
Greenville	84	26	55.7	2.24	Grundy Centre*	80	21	52.6	0.93
Griggsville*	83	25	54.5	3.61	Hampson	83	17	47.2	1.67
Hennepin	88	22	51.2	3.50	Hopeville	80	21	52.2	2.72
Iriahtown	—	—	—	2.63	Hopkinton	77	19	51.0	2.45
Jordan's Grove	88	28	57.4	2.74	Humboldt*	85	18	49.5	1.20
Lacon*	79	24	52.9	3.94	Independence*	75	23	50.3	2.17
Lanark	80	18	48.4	3.20	Indianola	81	18	50.6	2.90
Louisville	84	29	55.6	1.87	Iowa City	78	21	51.7	1.11
Martinsville	84	28	56.4	1.35	Larrabee	85	14	48.3	1.21
Mascoutah	82	25	56.5	2.50	Le Claire†	—	—	—	3.53
Mattoon	83	30	60.2	2.30	Leon	80	18	—	2.02
Mount Carmel†	—	—	—	2.05	Logan†	86	18	55.2	2.10
Olney (1)*	85	26	57.6	2.74	Maxon*	80	21	52.5	3.05
Olney (2)	84	31	55.7	2.74	Maquoketa*	80	21	48.4	2.63
Oswego	76	23	48.3	3.97	Marshalltown.	80	20	50.2	1.68
Ottawa†	83	23	52.3	3.96	Monticello*	79	20	50.0	2.60
Palestine	86	25	56.2	1.84	Mount Pleasant*†	78	26	54.6	2.64
Pana	82	32	58.9	4.16	Mount Vernon*	77	21	52.6	1.41
Peoria (1)†	—	—	—	3.54	Murray†	80	—	—	2.58
Peoria (2)	81	28	56.1	3.64	Osage	—	19	46.3	2.06
Philo	81	21	53.7	2.46	Oskaaloosa (1)*	79	23	52.5	2.50
Pontiac	84	22	52.5	3.45	Panama	86	18	51.6	2.25
Riley*	76	20	47.8	4.05	Richland*	—	24	50.6	2.49
Rockford	77	20	48.8	4.83	Sac City	83	18	49.2	1.00
Rock Island Ars'l.	85	21	52.1	3.46	Sanborn	—	—	—	0.88
Rushville	84	22	53.4	4.49	Stilson	77	16	48.4	1.80
Sandwich	75	30	50.4	4.70	Tipton*	78	21	51.5	2.80
South Evanston	77	30	—	4.40	Vinton*	79	21	49.3	0.84
Sycamore*	78	30	48.1	4.50	Washington*	82	22	54.6	0.89
Warren	—	—	—	5.16	Webster City*	84	22	49.1	0.59
White Hall*	80	24	57.2	1.89	West Bend†	85	20	48.1	1.31
Winnebago	76	20	49.3	4.17	Williams*	83	19	47.0	0.86
<i>Indiana.</i>					<i>Kansas.</i>				
Angola	83	20	50.4	2.08	Abilene	92	23	57.2	1.63
Butlerville*	—	26	54.6	3.34	Allison*	94	16	50.4	3.30
Cannelton	85	32	58.0	2.53	Alton	95	20	55.4	3.04
Columbia City	77	26	50.6	2.62	Altouna	86	20	59.8	2.71
Columbus	86	28	54.3	2.15	Bucklin	—	—	—	0.70
Connersville	82	23	52.7	3.30	Buffalo Park	88	18	—	2.85
Crandall	87	29	58.0	3.00	Burr Oak	87	19	—	3.00
De Gonia Springs	85	29	56.0	2.84	Cawker City	94	26	57.8	1.60
Delphi	80	19	50.2	3.46	Collyer	100	14	—	1.27
Evanville.	—	—	—	3.10	Columbus	—	—	—	4.43
Farmland	82	26	53.6	2.97	Concordia	90	24	53.6	1.96
Franklin	85	26	54.9	3.21	Cunningham*	95	16	57.0	0.60
Huntingburgh	90	28	61.3	5.25	Downs	—	—	—	2.64
Huntington†	—	—	—	3.08	Dwight	—	22	—	2.45
Jeffersonville	86	31	58.2	2.77	Elco	87	22	57.5	3.55
La Fayette	81	21	52.3	3.84	Elk Falls†	89†	29†	52.2†	3.88
Logansport (2).	84	22	52.6	2.77	Ellis	92	24	56.1	1.87
Marengo	85	33	59.4	3.70	Emporia	84	24	57.2	2.54
Marion†	81	23	53.0	—	Englewood*	92	22	62.1	0.29
Maury*	82	18	50.4†	3.68	Eureka Ranch	101	13	55.4	0.92
Michigan City	85	20	49.3	—	Ft. Leavenworth (1)	83	24	56.6	3.62
Mount Vernon (2)	—	—	—	1.70	Pt. Leavenworth (2)	82	24	55.9	3.30
Muncie	86	25	55.1	1.93	Fort Riley	89	21	54.8	1.10
Point Isabel	80	11	47.2	3.35	Freemont	98	14	53.4	3.87
Princeton	86	28	56.6	1.15	Globe*	84	28	54.4	5.36
Rockville	87	20	56.4	3.88	Gove City*†	96	14	52.2	2.54
Rushville†	—	—	—	3.01	Grainfield.	90	20	56.8	2.40
Seymour	86	27	56.5	2.47	Grenola	88	25	59.4	3.20
Shelbyville	82	29	56.0	3.58	Grinnell	94	18	57.4	2.05
Vevay	89	26	56.9	2.25	Halstead.	84	19	56.1	1.19
Vincennes	—	—	—	2.23	Havensville*	—	—	—	5.75
Worthington	81	25	55.4	2.33	Horton	86	23	56.4	4.10
					Hutchinson	—	—	—	1.04
					Independence.	90	22	61.0	3.25

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Kansas—Cont'd.	°	°	°	Ins.	Louisiana—Cont'd.	°	°	°	Ins.
Kansas City	83	25	56.7	3.74	Sugar Ex. Station..	84	37	66.2	0.80
Kellogg	87	19	59.3	2.61	Thibodeaux .....	.....	.....	.....	0.35
Kingman .....	.....	.....	.....	0.45	Winnabow .....	.....	.....	.....	3.10
Kirwin .....	.....	.....	.....	2.65	Maine.	.....	.....	.....	.....
La Crosse	91	30	57.0	1.94	Bar Harbor	66	25	43.3	2.87
La Harpe .....	.....	.....	.....	3.16	Belfast	62	30	42.7	.....
Lakin	92	19	54.4	0.70	Calais	64	23	42.0	2.95
Lawrence	85	25	57.0	5.79	Cornish	76	23	44.2	2.58
Lebo	90	20	56.7	3.24	Fairfield	71	21	43.0	1.97
Leoti	93	16	54.3	1.56	Farmington	80	12	44.6	1.97
Macksville	92	15	57.7	0.25	Fort Preble	74	19	44.3	1.80
Manhattan (1) .....	.....	.....	.....	2.27	Kennebec Arsenal ..	69	15	37.0	1.77
Manhattan (2)	91	21	56.2	0.52	Kent's Hill	73	19	41.6	1.85
Manhattan (3)	90	21	56.0	1.89	Lewiston	72	19	41.7	2.89
Marmaton	84	25	59.0	6.75	Mayfield	62	17	38.4	3.75
McAllister	90	20	57.5	1.46	Orono	69	22	41.3	3.26
McPherson .....	.....	.....	.....	1.23	Petit Menan	50	30	39.7	.....
Minneapolis	88	24	55.9	1.60	West Jonesport	60	30	39.7	.....
Monument	90	18	53.7	2.85	Maryland.	.....	.....	.....	.....
Morse	82	27	55.6	4.82	Barren Creek Sp'gs ..	81	28	54.2	1.76
Norton	96	16	52.6	3.41	Cumberland (1)	84	28	54.2	2.02
Oakley	96	.....	.....	7.58	Cumberland (2)	87	28	57.2	2.21
Ogallah	95	.....	.....	6.08	Fallston	82	26	52.4	2.71
Oswego	88	22	60.8	4.60	Fort McHenry	82	26	54.4	2.46
Page City	87	18	49.5	2.10	Frederick	89	39	57.1	2.16
Painter	94	20	55.8	0.88	Gaithersburgh	80	30	50.6	.....
Pauline	90	23	56.9	3.83	Leonardtown	80	31	54.2	2.46
Pleasant Dale	90	15	52.2	2.45	McDonogh	81	22	53.6	0.60
Quinter	90	15	52.2	0.75	Mt. St. Mary's Col. ..	82	28	54.5	4.18
Rome	82	24	57.8	3.66	Taneytown .....	.....	.....	.....	3.74
Salina	86	26	57.3	0.88	Woodstock	83	29	53.9	2.56
Sedan	86	22	59.5	2.33	Massachusetts.	.....	.....	.....	.....
Sheneca	88	21	55.0	4.75	Amherst	78	19	48.0	3.57
Sharon Springs	90	.....	.....	1.60	Amherst Ex Sta (1) ..	77	18	46.9	2.74
Springvale	94	18	57.8	0.35	Amherst Ex Sta (2) ..	80	18	49.4	2.66
Stafford	90	.....	.....	0.70	Andover	79	24	47.8	2.53
Sterling	91	40	63.8	0.79	Ashland .....	.....	.....	.....	4.05
Tribune	90	17	51.6	2.83	Blue Hill (sum't)	77	23	44.3	2.75
Wakefield	92	28	58.0	1.95	Blue Hill (base)	78	23	45.1	2.77
Wa Keeney	90	.....	.....	1.06	Blue Hill (valley) ..	78	25	47.5	2.91
Wallace (1) .....	.....	.....	.....	1.97	Boston .....	.....	.....	.....	2.53
Wallace (2)	92	.....	.....	1.20	Cambridge (1)	75	26	47.2	2.44
Wellington	94	22	60.8	2.40	Cambridge (2)	76	28	48.0	2.72
Weakan	90	20	55.0	0.50	Chestnut Hill	78	24	49.5	2.98
Winona	98	.....	.....	3.60	Chicopee .....	.....	.....	.....	3.10
Yates Centre .....	.....	.....	.....	3.60	Clinton .....	.....	.....	.....	2.90
Kentucky.	.....	.....	.....	.....	Concord	79	24	47.5	2.63
Bowling Green	90	29	61.6	2.42	Cotuit	72	24	43.4	2.65
Burnside .....	.....	.....	.....	2.95	Deerfield	81	27	48.3	.....
Cattlettsburg .....	.....	.....	.....	2.77	Dudley	78	18	46.1	1.91
Canton	85	32	59.5	3.70	Fall River (1)	78	27	46.4	4.32
Erlington	91	25	62.0	1.96	Fiskdale	74	28	46.1	2.14
Edmonton	84	28	57.6	2.61	Fitchburg (1)	80	20	46.9	4.18
Falmouth (1)	89	24	54.9	1.84	Fitchburg (2)	74	20	42.4	3.17
Fort Thomas	89	24	54.9	1.69	Florida	80	18	42.4	4.18
Frankfort (1)	92	20	56.6	1.96	Fort Warren	74	29	47.1	1.75
Frankfort (2)	92	20	56.6	1.96	Framingham	77	24	49.0	3.76
Franklin	89	31	60.3	3.59	Gilbertville	76	18	46.6	2.93
Greensburg	91	26	56.3	2.90	Groton (1)	78	20	47.8	3.29
Harrodsburg	91	26	56.3	2.90	Heath	76	16	45.9	.....
Louis	86	24	56.7	2.52	Kendall Green	76	25	49.0	3.64
Middleborough	84	29	54.7	1.06	Lake Cochituate	83	17	50.8	3.62
Mount Sterling	88	26	55.9	1.62	Lawrence	84	23	48.4	3.28
Newport Barracks ..	88	26	55.9	1.62	Leicester	75	18	45.2	.....
Pellville	88	26	55.9	1.62	Leominster	75	18	45.2	.....
Princeton	87	29	58.8	2.82	Long Plain	70	20	46.4	3.80
Richmond	90	25	58.2	2.07	Lowell (1)	76	23	47.0	3.56
Shelbyville	91	27	56.1	2.59	Lowell (2)	80	21	46.6	.....
South Fork	87	29	55.6	.....	Lowell (3)	81	23	48.3	.....
Williamsburg .....	.....	.....	.....	1.80	Ludlow (1)	78	14	45.2	2.87
Louisiana.	.....	.....	.....	.....	Ludlow (2)	81	17	45.2	2.75
Abbeville	87	35	68.8	0.66	Lynn	74	24	46.0	2.45
Alexandria	88	29	65.9	3.88	Mansfield	80	28	46.6	3.07
Amite City	88	28	66.6	2.43	Medford .....	.....	.....	.....	2.37
Baton Rouge	88	32	66.8	0.66	Middleborough	79	19	47.0	3.69
Cameron	89	35	67.6	0.58	Milton	78	29	47.0	2.91
Cheneyville	90	35	65.6	1.73	Monson	83	12	47.8	3.07
Coushatta (1) .....	.....	.....	.....	2.93	Mount Nonotuck .....	.....	.....	.....	3.13
Davis	85	28	63.2	5.09	Mystic Lake .....	.....	.....	.....	3.50
Delhi .....	.....	.....	.....	3.90	Mystic Station .....	.....	.....	.....	2.85
Edgard	83	39	67.3	0.44	New Bedford (1)	73	25	45.1	2.83
Emilie	88	34	66.9	0.41	New Bedford (2)	77	25	46.8	2.89
Farmerville	85	34	66.3	2.70	Newburyport (1)	79	27	47.5	2.10
Girard .....	.....	.....	.....	3.10	Newburyport (2) .....	.....	.....	.....	1.64
Grand Cane	86	32	66.1	3.80	Northampton	78	23	48.0	4.85
Grand Coteau	84	34	68.0	0.87	North Billerica	82	23	48.3	2.13
Homer	84	35	64.8	3.24	Plymouth	79	32	48.6	4.02
Houma	87	30	65.0	0.00	Princeton .....	.....	.....	.....	1.75
Jackson Barracks ..	87	34	68.0	0.61	Provincetown	70	25	45.4	3.28
Jeannerette	90	34	67.8	1.37	Randolph .....	.....	.....	.....	2.67
Lafayette	87	32	66.8	1.05	Roberts' Dam	76	22	45.2	2.89
Lake Charles	89	38	66.6	0.40	Salem (2)	76	22	45.2	2.18
Lawrence	84	42	68.1	0.66	Somerset	83	26	49.4	4.01
Liberty Hill	90	28	65.0	0.40	South Hingham .....	.....	.....	.....	3.12
Luling	83	35	67.9	0.22	Springfield Arm'y ..	79	24	48.9	2.55
Mandeville	89	30	67.9	1.26	Taunton (1)	81	24	47.3	3.97
Marksville	86	30	68.4	4.60	Taunton (2)	81	23	49.1	3.31
Maurepas	83	32	65.0	1.07	Taunton (3)	79	18	47.6	4.05
Melville	87	38	66.8	2.30	Taunton (4)	80	21	47.0	4.09
Monroe	84	34	64.7	3.58	Wakefield	79	23	48.4	3.64
New Iberia	87	36	67.8	0.52	Westborough	81	23	49.6	2.63
Paincourtville	86	32	67.0	0.45	Winchester .....	.....	.....	.....	2.80
Plaquemine	90	25	63.4	1.59	Worcester (2)	76	22	45.8	2.02
Shell Beach	84	39	66.8	1.10	.....	.....	.....	.....	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Michigan.					Minnesota—Cont'd.				
Adrian	79	20	49.9	2.63	Kinbrae	92	11	46.2	.....
Albion (1)	77	20	49.4	2.63	L. Winnibigoshish	83	8	43.6	1.32
Allegan	82	18	47.7	2.34	Leech Lake	83	0	43.4	0.94
Alma	81	18	46.1	1.51	Le Sueur*	85d	18 d	48.4d	2.09
Ann Arbor	75	18	48.3	1.82	Mankato	84	18	49.5	2.32
Arbela	.....	.....	.....	1.60	Minneapolis*	83	17	47.8	2.02
Atlantic*	74	12	35.4	0.90	Montevideo	90	14	48.6	1.50
Ball Mountain	73	25	46.5	2.99	Morris	87	12	47.0	1.90
Bangor	82	21	48.8	1.97	Northfield	83	18	48.2	1.90
Bear Lake	78	10	42.8	0.78	Ortonville	.....	.....	.....	1.47
Bellaire	82	8	44.8	1.58	Pine River	82	0	43.8	1.85
Bell Branch	76	20	45.3	1.62	Red Wing	82	19	49.5	2.25
Benzonia	78	18	44.5	0.78	Redwood Falls	.....	.....	.....	2.16
Berlin	82	20	46.5	1.49	Rolling Green	84	16	47.3	1.62
Birch Run	.....	.....	.....	1.66	Saint Charles*	78	12	48.5	3.45
Birmingham	80	20	48.1	2.56	Sheldon*	.....	22	47.9	2.52
Bronson	76	18	45.0	3.34	Tracy	.....	.....	.....	31.02
Buchanan	78	23	48.9	3.34	Mississippi.				
Calumet	82	12	39.3	0.92	Agricultural Col'ge	86	30	65.2	3.88
Caldwell	80	6	43.0	1.35	Batesville	89	29	64.9	4.44
Charlevoix	72	18	43.5	1.20	Bay Saint Louis	82	42	68.8	2.25
Cheboygan	74	7	39.8	2.30	Booneville	84	28	64.6	62.61
Clinton	77	22	48.3	2.25	Brookhaven	85	27	63.2	5.44
Colon	80	18	45.8	3.09	Canton	83	32	64.3	3.82
Concord	78	17	47.8	2.58	Columbus (1)	.....	.....	.....	3.42
Crystal Falls	84	5	40.3	0.35	Edwards	86	31	65.2	5.18
Deerfield	80	23	50.7	1.73	Enterprise	91	27	64.9	2.39
Eden	81	16	48.6	2.45	Fayette	85	35	65.8	5.55
Evart	77	9	45.4	1.46	Greenville	86	35	66.8	2.24
Fairview	75	19	45.9	2.07	Hattiesburg	88	33	67.4	1.75
Fitchburg	75	15	46.1	2.98	Holly Springs (1)*	84	32	63.2	5.62
Flint	76	18	46.6	1.22	Kosciusko	90	28	63.4	5.20
Fort Brady	76	4	37.6	0.66	Logtown	83	33	66.7	4.10
Fort Mackinac	60	9	36.0	3.24	Louisville	92	25	64.4	4.10
Fort Wayne	80	21	48.1	2.53	Moss Point	86	34	68.0	2.02
Freemont*	80	16	46.0	1.17	Pontotoc	92	66	62.9	1.18
Gaylord	79	1	41.4	.....	Ship Island	84	39	69.0	2.30
Gladwin	80	15	47.0	1.15	Vaiden	93	25	63.5	3.45
Grapet	78	21	47.9	1.77	Washington	87d	33d	66.3d	3.45
Grayling	82	8	44.3	0.95	Water Valley*	90	32	64.0	5.00
Hanover	77	19	47.9	2.47	Waynesboro* (1)	86	29	63.3	1.95
Harbor Springs	77	9	40.2	1.84	West Point	83	31	65.2	5.04
Harrison	77	12	44.1	0.91	Yasoo City	.....	.....	.....	3.78
Harrisville	80	16	41.7	3.17	Missouri.				
Hart	80	15	50.8	1.80	Adrian	84	15	51.8	5.14
Hastings	79	20	47.6	1.76	Appleton City	83	26	57.6	4.23
Hayes	81	21	49.4	.....	Austin*	80	28	58.0	.....
Highland Station*	77	18	47.0	2.39	Boonville	82	25	56.4	4.12
Hillman	84	8	43.1	0.95	Brunswick	85	28	53.6	4.10
Hillsdale	80	18	47.7	1.93	California	.....	.....	.....	0.90
Holt	.....	.....	.....	2.15	Cape Girardeau	81	28	55.2	5.48
Howell	79	18	47.1	1.97	Carrollton	79	28	55.9	3.23
Hudson	86	12	47.8	2.47	Carthage	81	28	55.9	2.48
Ivan	81	5	43.3	1.23	Centreville	81	20	54.3	4.80
Jackson	72	19	45.3	.....	Conception	84	20	53.0	3.25
Jeddo	75	20	44.9	2.26	Concordia	84	20	58.6	4.31
Kalamazoo	78	22	49.8	2.65	Dadeville	84	20	58.6	4.31
Lansing	78	18	47.9	2.45	Darksville	82	27	57.2	.....
Lathrop	82	6	39.5	1.00	Eight Mile*	86	30	58.0	3.85
Madison	78	21	49.4	2.14	Eldon	83	18	53.0	3.92
Marshall	85	17	48.3	2.26	Excelsior Springs*	82	26	56.1	4.20
May	79	18	47.0	1.69	Fayette	82	26	60.2	2.28
Montague	78	18	44.2	0.85	Fox Creek	82	25	55.8	3.43
Mottville	84	18	49.5	2.46	Glasgow	85	32	59.8	4.49
Noble	78	20	48.0	2.26	Gordonville*	.....	.....	.....	4.27
North Aurelius	.....	.....	.....	2.33	Grand Pass	79	25	53.5	5.56
North Marshall	79	15	45.7	2.34	Harrisonville*	81	32	60.8	2.94
Northport	72	13	42.2	0.95	Hermann*	83	27	57.8	2.84
Olivet	75	16	45.8	2.01	Jefferson Barracks	86	25	57.5	4.36
Otasego	85	16	50.0	3.00	Jerome	80	20	53.0	5.62
Ovid	78	19	47.0	1.73	Kansas City	80	30	58.2	3.66
Parkville	.....	.....	.....	3.29	Lamonte(2)*	88	20	55.6	2.88
Paw Paw	84	17	48.5	1.97	Langdon	80	20	53.0	3.86
Pontiac	74	23	47.7	3.15	Lebanon*	86	30	58.2	1.10
Pulaski*	80	20	45.7	2.33	Liberty	88	20	55.6	2.60
Rawsonville*	80	20	50.0	2.70	Louisiana Bridge	81	21	55.6	2.61
Rochester	.....	.....	.....	4.49	Marshall(2)	81	21	55.6	2.98
Rockland	89	8	42.8	.....	Mine La Motte	81	27	57.2	3.38
Romeo	75	22	47.5	2.13	New Haven*	86	30	58.0	1.10
Roscommon	82	9	43.8	2.11	Oak Ridge*	88	35	63.5	2.60
Saint Ignace	68	11	37.8	3.55	Oregon(1)	96	21	55.5	4.21
Saint John's	80	18	46.0	1.60	Oregon(2)	86	23	55.9	3.87
Sand Beach	75	19	41.8	1.45	Pickering	80	19	46.9	5.27
Standish	78	21	50.7	0.78	Platte River*	83	20	56.1	3.73
Stanton	68	12	41.6	1.79	Princeton*	84	24	54.2	3.63
Stockbridge	.....	.....	.....	2.00	Saint Charles (1)	80	25	55.1	2.47
Thornville	78	20	48.3	2.13	Saint Charles(2)	82	28	56.2	4.33
Vandalia	78	21	47.8	3.08	Saint Joseph	84	22	58.1	3.96
Vienna	.....	.....	.....	1.20	Saint Louis	84	24	57.3	5.00
Washington	79	20	47.2	2.30	Sedalia	82	25	53.0	4.90
Weldon Creek	80	11	46.6	0.71	Steelville*	83	25	56.5	1.15
West Branch	79	13	44.1	2.40	Stellada	83	25	56.6	5.24
White Pigeon	81	14	46.4	2.32	Warrenburg	89	29	56.6	4.23
Williamsont	80	20	52.9	2.74	Warrenton	80	27	57.1	3.31
Ypsilanti	76	20	45.2	2.41	Wither's Mills*	.....	.....	.....	3.80
Minnesota.					Montana.				
Alexandria	.....	.....	.....	1.27	Camp Poplar River	87	13	49.2	0.92
Alma City	84	18	47.7	1.64	Choteau	80	19	46.0	T.
Crookston	87	4	47.4	1.29	Fort Assiniboine	85	17	48.8	1.01
Faribault	86	15	48.0	1.67	Fort Custer	86	17	48.4	0.68
Farlington	80	18	48.2	1.70	Fort Keogh	88	18	48.7	1.16
Fergus Falls	.....	.....	.....	1.95	Fort Missoula	78	19	45.8	0.65
Fort Ripley	.....	.....	.....	1.84	Fort Shaw	83	17	49.7	0.90
Fort Snelling	85	16	47.5	2.59	.....	.....	.....	.....	.....
Grand Meadow	81	14	47.3	1.90	.....	.....	.....	.....	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Montana—Cont'd.	o	o	o	Ins.	N. Hampshire—Con.	o	o	o	Ins.
Glendive.....	96	15	51.9	2.45	Berlin Falls.....	73	6	38.5	.....
Martinsdale.....	52	9	45.9	0.53	Berlin Mills.....	79	10	40.0	3.01
Virginia City.....	73	11	41.6	1.00	Concord.....	86	18	46.2	2.41
Nebraska.					East Canterbury.....	73	30	42.6	2.69
Allamore.....	87	16	45.9	2.27	Groveton.....	76	10	40.9	1.68
Ansley.....	93	10	52.6	6.30	Hanover (1).....	74	14	45.5	2.21
Arberville.....	90	21	52.0	3.60	Hanover (2).....	81	21	45.2	2.39
Ashland.....	84	22	56.7	3.64	Lake Village.....	77	21	41.2	2.21
Autumn (1).....	90	22	55.7	3.64	Littleton.....	80	20	47.3	2.08
Autumn (2).....	90	22	55.7	3.64	Manchester (1).....	77	21	41.2	2.21
Bassett.....	90	12	51.5	2.19	Mine Falls.....	81	20	47.7	2.95
Beatrice.....	91	30	54.1	.....	Nashua.....	78	20	44.4	2.44
Beaver City.....	100	20	53.7	3.68	Newton.....	82	14	43.1	3.16
Burwell.....	90	19	51.6	4.44	North Conway.....	82	14	43.1	3.16
Creighton.....	82	15	48.5	5.50	Pennichuck Station.....	82	18	41.9	2.31
Cret.....	92	19	53.3	3.87	Plymouth.....	82	10	42.0	1.84
Culbertson.....	83	18	48.5	3.70	Walpole.....	78	14	45.1	3.12
Dahl City.....	91	18	53.3	3.36	West Milan.....	76	3	39.2	2.92
De Soto.....	84	18	50.4	1.98	Wier's Bridge.....	.....	.....	.....	1.46
Dunning.....	90	26	51.6	4.47	Wolfborough.....	.....	.....	.....	2.59
Erison.....	90	26	51.6	4.47	New Jersey.				
Fairbury.....	90	26	51.6	4.47	Allaire.....	83	20	50.3	.....
Fairfield.....	93	20	52.8	4.01	Asbury Park.....	82	26	52.2	1.93
Fort Niobrara.....	91	6	46.4	2.90	Belleville.....	85	24	52.2	2.35
Fort Omaha.....	90	18	54.0	1.66	Beverly.....	85	24	52.2	2.35
Fort Robinson.....	87	15	47.8	1.57	Billingsport L. H.....	82	30	53.4	1.81
Fort Sidney.....	85	17	48.0	2.69	Bridgeton.....	84	31	54.7	2.28
Franklin.....	93	17	53.1	4.13	Camden.....	86	30	54.2	2.42
Fremont.....	92	19	53.8	2.35	Cape May C. H. f.....	83	30	53.2	2.50
Genoa.....	88	20	51.8	4.84	Deckerton.....	80	27	48.6	2.07
Gering.....	86	18	47.8	1.30	Dover.....	82	20	50.1	2.53
Grand Island.....	84	16	47.1	3.49	Egg Harbor City.....	82	24	51.4	2.44
Grant.....	87	19	50.7	5.57	Franklinville.....	81	26	52.2	1.94
Harvard.....	87	13	45.7	2.07	Freehold.....	81	26	50.7	2.20
Hay Springs.....	93	21	54.4	3.50	Gillette.....	79	22	50.2	1.90
Hedron.....	86	24	51.6	3.10	Hanover.....	80	20	49.3	1.88
Holdrege.....	86	24	51.6	3.10	Highland Park.....	81	25	51.0	1.65
Imperial.....	89	17	47.6	2.75	Imperial.....	82	27	52.0	1.83
Kimbball.....	100	12	52.6	2.11	Junction City.....	81	29	52.5	1.39
Lexington.....	91	21	54.4	2.99	Lambertville.....	81	26	50.9	1.81
Lincoln.....	92	10	51.8	3.90	Locktown.....	81	26	50.9	1.81
Long Pine.....	92	10	51.8	3.90	Moorestown.....	84	29	51.0	2.32
Marquette.....	92	10	51.8	3.90	Mount Holly.....	83	28	53.8	2.00
Minden.....	95	16	51.5	3.70	Newark (1).....	77	29	51.1	2.11
Norfolk.....	90	14	50.0	1.67	Newark (2).....	83	25	52.6	2.29
North Loup.....	89	15	50.9	5.47	New Brunswick (1).....	83	25	51.3	1.75
Oakdale.....	92	13	50.1	6.08	New Brunswick (2).....	76	25	51.3	1.77
O'Neill.....	90	17	50.9	5.35	Newton.....	76	25	51.3	1.77
Palmer.....	94	16	48.4	5.00	Ocean City.....	72	32	49.2	.....
Plattsburgh.....	.....	.....	.....	5.63	Paterson.....	85	32	53.6	3.10
Precept.....	.....	14	54.2	3.28	Rancocas.....	83	29	53.7	3.30
Purple Lake.....	86	20	54.3	3.28	Salem.....	84	29	53.7	3.30
Ravenna.....	91	18	51.5	5.16	South Orange.....	81	26	50.9	3.80
Sargent.....	86	28	57.9	1.90	Tenafly.....	86	20	51.7	2.28
Seward.....	88	20	53.8	1.12	Trenton.....	84	28	55.0	1.99
Superior.....	84	22	54.8	2.16	Vineland.....	84	28	53.6	2.54
Synouse.....	84	22	54.8	2.16	Whiting.....	85	27	53.1	1.66
Tecumseh.....	84	22	54.8	2.16	Woodbury.....	85	30	54.5	1.86
Tekamah.....	82	15	54.1	2.04	New Mexico.				
Wallace.....	88	22	51.0	5.17	Albert.....	87	25	56.4	0.11
Weeping Water.....	91	20	52.2	2.35	Antelope Spring.....	84	14	48.6	0.00
West Hill.....	90	17	52.6	5.27	Bernalillo.....	81	11	39.0	0.40
West Point.....	89	27	52.6	1.70	Chama.....	81	11	39.0	0.40
Whitman.....	86	28	48.7	2.29	Cuba.....	80	46	62.2	0.00
Wilcox.....	94	20	.....	3.41	Deming.....	76	8	48.6	0.47
York.....	.....	.....	.....	3.52	Embudo.....	81	14	47.2	0.48
Nebraska.					Estalita Springs.....	83	24	52.0	0.00
Austin.....	71	19	44.3	3.31	Fort Bayard.....	73	16	46.7	0.00
Battle Mountain.....	80	30	54.2	1.60	Fort Stanton.....	75	16	46.7	0.00
Belmont.....	72	13	42.6	0.95	Fort Wingate.....	79	16	45.4	0.10
Beowawe.....	80	17	49.9	1.75	Gallinas Spring.....	82	24	52.8	0.07
Brown.....	88	36	57.3	0.41	Hillsborough.....	81	29	50.4	0.00
Candelaria.....	72	31	48.0	1.28	Lordsburg.....	88	39	60.1	0.00
Carlisle.....	80	20	45.4	0.35	Los Lunas.....	84	14	55.9	2.40
Carson City.....	76	23	48.2	1.85	Monero.....	76	2	39.6	0.65
Crane's Ranch.....	.....	.....	.....	2.53	Olio.....	86	18	48.8	0.40
Downeyville.....	83	22	51.4	1.07	Pojuaque.....	84	22	53.0	0.29
Ely.....	70	5	40.5	2.47	Red Canon.....	84	22	53.0	0.29
Eureka.....	81	8	47.1	2.32	Springer.....	84	22	53.0	0.29
Fenelon.....	87	23	52.7	0.30	Taos.....	.....	.....	.....	0.00
Genoa.....	77	20	48.8	1.13	New York.				
Goldsboro.....	82	30	53.0	0.25	Adelphi Academy.....	80	31	51.5	2.48
Halleck.....	84	20	45.2	2.00	Addison.....	82	21	47.6	1.44
Hawthorne (1).....	77	37	54.1	1.19	Afton.....	82	21	47.6	1.44
Hawthorne (2).....	81	19	52.0	1.19	Akron.....	82	21	47.6	1.44
Hot Springs.....	80	30	55.2	0.60	Alabama.....	77	18	43.5	1.74
Humboldt.....	74	22	52.6	1.25	Alfred Centre.....	78	14	44.9	2.21
Lewer's Ranch.....	73	25	48.2	1.73	Arcade (1).....	77	13	43.1	1.32
Mill City.....	74	28	50.7	1.81	Arkwright.....	73	19	44.1	1.32
Palisade.....	80	30	48.7	1.20	Avon.....	81	32	45.6	1.13
Palmetto.....	75	12	43.3	3.73	Baldwinsville.....	81	32	45.6	1.13
Pioche.....	82	8	45.2	0.51	Bedford.....	80	21	46.7	2.16
Reno.....	76	31	51.8	0.72	Bethlehem Centre.....	80	21	46.7	2.16
Reno State Univ'ty.....	74	24	48.2	0.56	Binghamton.....	80	21	46.7	2.16
Sodaville.....	84	29	53.8	1.60	Blood's Depot.....	80	21	46.7	2.16
Tecoma.....	75	23	49.9	1.08	Boyd's Corners.....	81	28	50.7	3.77
Toano.....	75	23	49.9	1.08	Brentwood.....	82	26	50.1	4.05
Virginia City.....	71	20	46.8	1.27	Brookfield.....	76	18	42.1	1.76
Wadsworth.....	80	30	53.4	0.00	Canton.....	78	20	43.6	2.43
Wells.....	80	28	50.5	0.45	Carmel.....	81	30	50.0	3.14
Winnemucca.....	91	25	53.2	0.65	Central Park, N. Y.....	80	29	49.7	3.38
Younts Ranch.....	88	32	60.0	0.90	Cherry Creek.....	80	29	49.7	3.38
New Hampshire.					Constableville.....	74	15	40.6	2.95
Antrim.....	.....	.....	.....	3.13					
Belmont.....	.....	.....	.....	2.55					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
New York—Cont'd.	o	o	o	Ins.	North Dakota.	o	o	o	Ins.
Cooperstown.....	75	20	44.0	2.22	Fort A. Lincoln.....	68	8	42.5	.....
David's Island.....	80	29	52.4	1.50	Fort Buford.....	86	10	48.4	1.84
De Kalb Junction.....	.....	.....	.....	2.05	Fort Pembina.....	90	5	46.0	1.56
Demost.....	.....	.....	.....	1.88	Fort Yates.....	94	9	48.8	3.16
Deposit.....	.....	.....	.....	2.35	Gallatin.....	90	0	.....	1.69
Dunkirk (2).....	.....	.....	.....	0.66	Kelso.....	99	10	46.0	3.21
Easton.....	.....	.....	.....	2.30	Napoleon.....	90	4	44.5	2.39
Elmira.....	.....	.....	.....	1.73	Wahpeton.....	88	18	50.5	1.73
Factoryville.....	85	19	47.1	1.83	Wild Rice.....	90	13	45.2	1.68
Fort Columbus.....	82	31	51.1	2.28	Ohio.				
Fort Hamilton.....	77	30	51.7	1.50	Akron.....	79	21	50.0	2.18
Fort Niagara.....	77	24	46.1	1.98	Ashland.....	81	25	52.0	2.33
Fort Porter.....	74	23	42.0	0.35	Athens.....	86	23	53.0	1.21
Fort Schuyler.....	79	22	48.6	2.66	Bangorville.....	80	21	50.0	2.53
Fort Wadsworth.....	83	27	58.3	2.51	Bellevue.....	78	20	47.8	2.00
Geneva.....	86	21	47.8	1.95	Bement.....	82	13	46.2	2.18
Hammondsport.....	80	20	48.2	.....	Caledonia.....	.....	.....	.....	2.25
Hess Road Station.....	77	21	45.9	2.00	Canton.....	82	22	50.0	1.65
Honeyhead Brook.....	79	17	47.2	3.58	Celina.....	85	25	54.0	1.67
Humphreys.....	79	16	48.0	2.17	Circleville (1).....	.....	.....	.....	2.20
Hyndsville.....	79	12	44.1	1.46	Circleville (2).....	85	26	54.0	2.17
Ithaca.....	81	22	47.8	2.45	Cleveland.....	82	22	49.3	1.68
Jamesville.....	.....	.....	.....	40.5	Columbus Barracks.....	86	22	53.2	1.98
Keene Valley.....	86	8	35.0	2.55	Dartmouth.....	82	25	55.0	2.89
Kings Station.....	80	18	45.8	2.22	Demos.....	81	20	51.6	2.14
Le Roy.....	80	18	45.8	2.22	Ellsworth.....	.....	.....	.....	1.69
Liberty.....	75	21	43.7	1.63	Findlay.....	82	23	51.0	2.73
Lockport.....	75	21	43.7	1.63	Garrettsville.....	80	10	46.5	1.57
Lowville.....	84	24	42.4	1.30	Georgetown.....	87	24	56.0	1.70
Lyons.....	81	25	46.9	2.08	Granville.....	82	22	53.0	2.14
Lyons Mountain (2).....	76	23	44.7	0.85	Gratiot.....	87	24	52.3	1.

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Oregon—Cont'd.</i>	0	0	0	<i>Ins.</i>	<i>S. Carolina—Cont'd.</i>	0	0	0	<i>Ins.</i>
The Dalles.....	76	27	53.4	0.01	Evergreen*.....	83	26	54.5	2.63
Vernonia.....	70	35	48.7	3.95	Greenville*.....	80	28	54.0	2.82
Weston.....	79	38	51.1	0.77	Kirkwood*.....	81	28	59.7	1.24
<i>Pennsylvania.</i>					Port Royal*.....	81	38	65.0	1.61
Allegheny Arsenal.....	82	21	52.2	1.41	Simpsonville*.....	88	25	60.9	1.34
Altoona.....	82	27	53.8	1.36	Statesburg.....	83	32	63.0	1.21
Aqueduct*.....	87	29	53.1	2.35	Trial.....	92	28	67.0	2.20
Blooming Grove*.....	85	23	48.8	3.39	Winnsborough.....	86	27	62.3	1.89
Blue Knob*.....	84	18	47.6	1.80	Yorkville.....				
Brookville.....				2.47	<i>South Dakota.</i>				
Brothers Lock.....				2.07	Aberdeen.....	87	8	46.0	2.50
Carlisle.....	87	24	51.4	1.18	Alexandria.....	90	12	50.2	2.62
Charlestown.....	83	24	48.8	1.35	Brookings.....	88	11	44.1	2.23
Clarion (1).....				3.84	Canton.....	86	13	44.3	3.45
Coatesville.....	84	22	51.5	2.25	Clark.....	87	8	48.3	3.74
Confluence.....				3.12	De Smet*.....	76	17	47.2	2.88
Coopersburg.....	80	25	51.7	2.50	Elkton.....				2.84
Corry.....	84	14	44.6	1.80	Flandreau.....	96	8	47.5	2.27
Davis Island Dam.....				1.94	Fort Bennett.....	95	14	50.1	2.27
Doylestown.....				1.92	Fort Meade.....	83	17	47.6	2.29
Du Bois.....				2.66	Fort Randall.....	87	15	50.5	4.39
Dyberry.....	81	17	44.3	2.42	Fort Sully.....	93	15	49.9	2.80
Eagle's Mere.....	76	16	44.6	3.15	Highmore.....	88	8	45.4	1.94
Easton.....	79	26	50.3	2.41	Kimball*.....	87	11	46.3	3.25
Emporium.....	83	17	47.9	2.33	Millbank*.....	88	20	56.1	1.86
Fish of Neshaminy.....				51.6	Onida.....	88	15	44.6	1.70
Frankford Arsenal.....	84	26	52.8	2.60	Jeirichal.....	102	12	48.0	0.40
Frederick.....				1.85	Parkston.....	82	18	48.1	3.18
Freeport.....				2.99	Saint Lawrence*.....	92	16	50.8	2.78
Girardville.....	79	23	49.9	3.54	Seranton.....	93	12	47.4	2.16
Grampian Hills.....	80	14	46.6	2.34	Sioux Falls*.....	90	14	45.9	2.69
Greensborough.....				2.11	Spearfish.....	86	17	46.8	2.66
Greenville.....	79	11	47.7	1.75	Webster.....	87	7	49.8	3.86
Hamburgh.....	84	24	51.3	2.26	Wolsey.....	89	11	48.0	2.79
Holidaysburgh.....	88	21	54.0	1.60	Yankton.....	92	15	51.1	3.79
Honesdale.....	80	20	46.9	2.68	<i>Tennessee.</i>				
Huntingdon.....	86	22	50.2	1.92	Andersonville.....	86	28	61.5	1.95
Johnstown.....	84	23	50.8	2.73	Ashwood*.....	83	31	60.0	4.15
Kennett Square*.....	74	30	49.7	2.32	Austin.....	88	32	61.6	2.59
Kilmer.....	85	31	54.6	2.52	Carthage.....				3.11
Lancaster.....	82	24	52.9	1.69	Charleston.....				1.79
Lansdale.....				2.12	Clarksville.....	85	30	60.1	3.06
Lebanon.....	84	24	52.1	2.19	Clinton.....				1.97
Le Roy.....	83	20	47.2	2.01	Columbia.....				6.50
Lewisburgh.....	87	25	52.0	2.39	Covington (1).....	82	28	61.6	2.46
Ligonier.....	83	16	53.2	2.23	Dunlap.....	88	26	61.8	2.59
Lock Haven.....				1.48	Fayetteville.....	86	30	60.4	3.71
Lock No. 4.....				1.77	Florence Station.....	84	32	60.8	4.21
Mahoning.....				2.86	Franklin.....	87	30	60.1	3.32
Mauch Chunk.....	80	26	47.5	2.58	Greenville.....	81	29	56.2	2.09
McConnellsburch.....	86	24	51.7	2.58	Harriman.....	91	25	59.2	1.82
Meadville.....	78	14	47.2	1.53	Hohenwald.....	90	28	60.4	3.53
New Castle.....	82	18	52.7	2.36	Jacksborough.....	84	30	59.1	1.25
Nisbet.....		31	49.4	2.00	Jackson.....	80	34	62.3	2.30
Oil City.....				1.91	Johnson City.....	86	24	58.5	2.79
Ottawa.....				1.70	Johnsonville.....				6.14
Parker's Landing.....				2.29	Kingston (1).....				2.89
Philadelphia (1).....				2.47	Lewisburgh.....	84	31	59.5	4.97
Philadelphia (2).....	86	30	54.4	2.82	Loudon.....				1.20
Phoenixville.....	82	26	52.4	2.87	Lynnville.....	86	30	58.9	4.38
Pleasant Mount.....		27	43.1	3.47	McKenzie.....	84	29	58.2	4.37
Point Pleasant.....				1.70	McMinnville.....	85	34	59.3	3.79
Pottstown.....	83	28	53.3	1.80	Missionary Ridge.....				3.20
Quakertown.....	81	21	50.3	2.74	Northville.....	88	26	58.4	3.42
Reading.....				3.33	Newport.....	82	33	58.6	1.51
Ridgway.....				1.80	Nunnally.....	87	31	60.8	2.97
Rimersburgh.....	80	16	48.2	2.24	Parksville.....	85	26	60.1	0.81
Salem Corners.....	75	26	49.3	3.58	Riddleton.....	88	28	59.6	2.97
Saltzburgh.....				2.24	Rockwood.....				2.25
Seisholtzville.....				2.11	Rogersville.....	83	29	56.6	2.72
Selin's Grove.....				1.82	Rugby.....	83	28	57.1	2.03
Smethport.....	80	15	46.4	1.75	Sharp.....	88	30	61.3	3.68
Smith's Corners.....				1.75	Sparta.....	90	30	61.5	4.68
Somerset.....	84	18	46.4	1.13	Strawberry Plain.....				1.08
South Eaton.....	81	22	48.3	2.85	Trenton.....	82	32	58.8	4.36
State College.....	82	20	49.6	1.47	Union City.....	82	31	60.7	3.14
Stoyestown.....				2.45	Waynesborough.....	89	30	59.1	3.15
Swarthmore.....	81	25	52.2	1.53	<i>Texas.</i>				4.71
Troy.....	85	25	48.4	1.56	Arthur City.....				4.71
Uniontown.....	83	15	53.1	2.18	Austin (1).....	85	45	68.1	7.50
Warren.....				1.70	Austin (2).....	88	39	70.2	2.33
Wellsborough.....	82	16	45.4	1.07	Austin (3).....	88	37	69.0	6.85
West Chester.....	80	27	52.1	2.32	Berlin.....	89	33	65.8	1.75
West Newton.....				1.86	Big Spring.....				0.12
Wilkes Barre.....	84	22	51.3	2.28	Brady.....	87	28	63.6	3.79
Wysox.....	83	20	47.5	1.79	Brazoria*.....	84	38	67.4	3.14
York.....	85	22	52.5	2.01	Brenham.....	87	39	69.4	5.02
<i>Rhode Island.</i>					Brownwood.....	87	31	62.9	2.35
Bristol.....	71	28	45.9	3.87	Burnet.....	84	40	64.9	3.68
Fort Adams.....	70	22	43.9	2.37	Camp del Rio.....	96	35	69.8	2.20
Kingston (1).....	78	23	46.9	4.20	Camp Eagle Pass.....	94	41	67.8	1.99
Kingston (2).....	76	20	45.5	4.70	C'p Peña Colorado.....	89	27	60.7	0.10
Lonsdale.....				3.76	Childress.....	85	33	60.1	3.64
Olneyville.....	76	25	50.6	3.34	College Station.....	95	40	69.8	7.01
Pawtucket.....				3.34	Colorado.....				0.10
Providence (1).....	80	28	50.1	3.58	Columbia.....	84	38	68.8	1.32
Providence (2).....	80	25	49.2	3.35	Corsicana (1).....	87	31	64.8	7.48
Providence (3).....	80	25	49.0	3.78	Corsicana (2).....	87	33	64.4	9.20
<i>South Carolina.</i>					Durham.....				1.91
Aiken.....	84	30	64.3	1.30	Duval.....	90	39	68.7	4.30
Belmont.....	84	28	63.2	2.01	Edinburgh.....				1.42
Brewer Mine.....	91	29	62.1	0.84	Forestburgh.....	90	38	64.6	3.78
Cheraw (1).....	88	29	62.2	1.73	Fort Bliss.....	93	33	62.6	0.78
Cheraw (2).....				2.08	Fort Brown.....	89	48	71.5	2.36
Conway.....	83	33	62.1	1.11	Fort Clark.....	89	39	68.7	1.60

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Texas—Cont'd.</i>	0	0	0	<i>Ins.</i>	<i>Washington—Cont'd.</i>	0	0	0	<i>Ins.</i>
Fort Davis.....	84	27	59.5	T.	Fort Canby.....	66	33	50.0	7.94
Fort Hancock.....	86	26	59.4	0.00	Fort Simcoe.....	80	38	56.9	0.00
Fort McIntosh.....	95	41	69.0	8.30	Fort Spokane.....	80	25	51.6	0.65
Fort Ringgold.....	95	41	72.3	2.43	Fort Townsend.....	63	30	48.3	2.42
Fredericksburgh.....	89	31	64.2	2.88	Fort Walla Walla.....	76	30	53.6	1.09
Gainesville.....	84	31	62.9	4.01	Lapush.....	59	11	32.4	7.79
Gallinas.....	90	34	66.9	13.84	Port Blakeley.....	70	32	50.6	4.15
Grapevine.....	87	32	63.6	6.00	Seattle.....	68	32	46.4	4.95
Haskell.....	87	40	66.2	4.80	Tacoma.....	68	30	51.8	4.91
Haymond.....				0.04	Vancouver B'ks.....	71	31	51.6	4.46
Houston.....	86	34	67.6	2.64	Vashon.....	73	36	51.2	0.53
Huntsville.....	84	34	66.2	13.74	<i>West Virginia.</i>				
La Grange*.....	87	32	67.8	5.42	Alderson*.....	80	20	50.8	.....
Longview.....	87	32	66.6	5.14	Buckhannon.....				3.37
Lozier.....				4.50	Charleston.....	80	25	52.3	3.03
Luling.....	87	41	70.0	0.43	Ella*.....				1.60
Menardville.....	88	37	63.2	0.85	Glenview.....				3.46
Mesquite.....	88	30	64.8	5.17	Harper's Ferry.....				1.64
Midland.....				0.22	Hinton.....				2.39
Monahan.....				0.10	Kingwood.....	82	30	47.6	.....
Mountain Springs.....	85	32	64.4	3.56	Morgantown.....				2.72
New Braunfels.....	85	38	67.3	6.35	Pleasant Hill.....	80	18	51.6	.....
New Ulm.....	90	39	68.0	4.57	Point Pleasant.....				2.09
Painted Cave.....				0.01	Rowlesburgh (1).....				4.20
Panhandle.....	86	22	54.3	0.82	Tannery*.....	85	14	52.3	.....
Roby.....	88	29	62.0	1.90	Tyler Creek.....	88	30	54.7	3.04
Round Rock.....	88	32	68.1	5.62	Weston.....				6.74
San Antonio.....	92	38	65.8	1.45	Wheeling.....				1.42
San Antonio.....	86	39	67.4	3.77	White Sulph' Sp'gs.....				2.50
Sanderson.....				0.47	<i>Wisconsin.</i>				
Santa Maria.....				1.45	Amherst.....	81	12	43.8	2.55
Sierra Blanca (1).....	95	54	70.5	0.00	Appleton (1).....	76	17	44.6	1.94
Sierra Blanca (2).....				0.00	Bayfield.....	74	14	44.6	2.12
Silver Falls.....	86	28	60.3	4.58	Beaver Dam.....	76	19	45.8	1.42
Van Horn.....				0.00	Beloit.....	74	19	47.2	3.81
Venus.....	89	28	65.0	0.04	Black River Falls.....	84	16	45.5	2.18
Victoria.....	82	31	70.0	4.40	Butternut*.....				1.58

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Newfoundland.	0	0	0	Ins.	West Indies.	0	0	0	Ins.
Saint John's.....	61	10	35.0	5.78	Grand Turk Island	84	78	81.0	5.57
Sandwich Islands.					Hamilton, Bermuda	70.4	58.4	64.4	4.71
Honolulu.....	83	60	73.0	1.59					

Received too late for general discussion of weather for April, 1891.

Arizona.					Nevada.				
Benson.....	92	56	75.4	0.00	Elko (1).....	84	22	48.1	0.47
Tempe.....	99	34	65.1	T.	New York.....				
Texas Hill.....	103	52	72.1	0.00	Fleming.....	80	19	45.2	1.01
California.					Italy Hill.....	78	15	43.5	.....
Arcata.....				6.86	Lyon Mountain (1).....	69	15	37.1	.....
Dunsmuir.....	83	32	51.3	4.95	Pompey.....	74	18	44.2	.....
Edgewood.....	66	24	46.0	1.96	Saratoga.....	78	25	47.2	.....
Elmira.....	90	47	68.5	1.72	Wedgwood.....	84	13	44.6	2.46
Fresno.....	90	45	62.4	0.55	North Carolina.				
Glen Ellen.....	90	38	54.5	3.01	Raleigh.....	85	30	61.0	2.50
Keeler.....	88	30	57.9	0.00	Oregon.				
Livermore.....	90	38	55.5	1.88	Hardman.....	74	22	44.8	0.84
Merced.....	83	28	51.5	1.05	Tillamook R'k L.H.				4.55
Oroville.....	84	40	58.5	1.73	Toledo.....	70	31	51.6	7.25
Sisson.....	78	30	45.7	3.64	Pennsylvania.				
Stockton (2).....	86	45	62.1	1.58	Edinborough.....	74	16	45.8	.....
Colorado.					Texas.				
Leslie.....				4.81	Epworth.....				2.27
Montrose (near).....				0.07	Graham.....				4.60
Wray.....				4.68	Panther.....	90	37	65.6	2.42
Illinois.					Snyder.....	32	59.6	2.30	
Golconda.....	86	28	59.5	1.64	Washington.				
Indian Territory.....					Chehalis.....	70	28	50.0	3.33
Healdton.....	80	38	64.4	5.58	Waterville.....	73	19	46.8	0.09
Nebraska.					Wyoming.				
Ough (2).....				3.84	Fort Fetterman....	93	13	45.4	0.00

Received too late for publication in March, 1891.

Arizona.					Colorado—Cont'd.				
Benson.....	78	38	56.3	0.15	East Dale.....				1.60
Woodruff.....				2.63	Fort Collins.....	67	4	30.5	1.34
California.					Florida.				
Arcata.....				7.13	Homeland.....	85	47	67.8	3.60
Beaumont.....	69	38	53.3	1.07	Idaho.				
Bishop Creek.....	72	34	50.1	0.28	Lewiston.....	60	8	39.5	1.21
Edgewood.....	60	25	40.8	0.18	Kansas.				
Fresno.....	72	38	52.3	0.81	Dwight.....				3.50
Mount Hamilton.....	59	26	41.0	4.10	Norton.....	69	2	32.0	4.03
Petaluma.....	74	36	55.4	1.57	North Carolina.				
Pleasanton.....	75	37	55.3	1.85	Raleigh.....	73	22	47.0	6.36
Red Bluff.....	78	40	56.0	1.02	Texas.				
Santa Rosa.....	75	35	55.5	1.22	Gainesville.....	78	15	49.8	2.88
Sisson.....	58	21	40.5	0.61	Utah.				
Colorado.					Mount Pleasant.....	45	1	25.0	0.50
Como (near).....	41	—14	15.5	2.12					

Letters of the alphabet denote the number of days missing from the record, thus: the letter c indicates three days missing, etc., etc.

*Extremes of temperature from observed readings. †Signal Service instruments.

‡One observation daily at 10 a. m.
Corrections: Modesto, Cal., March, 1891, mean temperature should be 60.9, instead of 57.5; Dunsmuir, Cal., February, 1891, page 45, strike out all data and insert 58, 20, 39.5, 17.07.

Precipitation (inches and hundredths) observed at Dartmouth College, Hanover, N. H.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1872...	1.46	1.40	1.62	0.38	3.42	4.34	5.63	7.35	2.64	1.57	0.75	2.28	32.84
1873...	3.10	1.75	3.54	1.32	1.21	1.74	5.91	1.52	3.83	5.57	2.38	1.65	33.52
1874...	2.90	1.81	0.68	3.40	3.26	3.44	5.07	2.01	3.92	1.30	1.62	1.08	30.79
1875...	3.92	1.20	2.55	0.72	3.94	4.98	2.70	4.51	1.94	3.94	1.63	0.78	32.21
1876...	1.72	3.59	3.45	1.32	3.46	[5.00]	0.42	4.58	0.53	2.13	4.30	[31.82]	
1877...	2.70	[0.60]	2.57	1.97	1.03	4.28	8.48	4.01	0.91	4.67	3.81	0.96	[35.19]
1878...	1.92	1.70	0.28	3.01	1.09	3.40	2.62	2.44	1.66	1.30	3.50	4.69	37.61
1879...	2.85	2.38	3.01	2.52	0.81	4.05	2.77	3.46	3.43	1.68	4.58	1.97	33.51
1880...	3.18	1.29	1.06	1.55	1.68	1.83	2.39	3.23	2.06	2.84	2.23	1.51	24.94
1881...	2.97	1.21	2.02	0.07	3.61	[2.50]	[4.00]	0.85	1.92	2.50	2.47	3.96	[28.08]
1882...	1.66	1.01	0.98	0.86	3.79	3.05	2.70	1.55	6.46	0.77	0.59	1.81	26.33
1883...	1.07	2.02	1.07	1.31	2.71	2.73	4.30	0.85	2.38	2.89	1.38	1.87	24.58
1884...	2.01	3.06	3.11	2.29	2.74	2.87	1.66	3.83	0.27	1.40	3.45	2.75	39.44
1885...	3.08	3.20	1.12	1.93	1.79	2.39	2.62	7.77	2.19	2.96	6.62	2.03	36.70
1886...	3.47	1.24	2.13	1.11	2.55	2.36	1.75	2.84	2.71	2.45	4.94	1.99	39.54
1887...	4.82	7.67	2.43	1.54	3.32	2.74	6.13	3.14	0.91	1.89	3.98	3.45	41.25
1888...	3.75	2.20	2.55	2.39	3.84	4.65	1.99	4.64	5.86	4.05	5.14	2.37	45.56
1889...	3.28	2.17	2.65	0.97	1.84	3.61	5.48	1.78	3.52	4.60	4.76	2.85	37.51
1890...	2.48	2.75	3.24	1.57	5.40	2.63	3.85	7.77	3.99	4.75	1.86	2.80	43.09
Mean...	2.76	2.23	2.25	1.60	2.58	3.21	3.95	3.37	2.90	2.72	3.01	2.37	32.95

NOTE.—A printed record of the rainfall observations made at the college prior to 1872 will be found in the February, 1886, Review.

Mean temperature (degrees Fahr.) observed at Dartmouth College, Hanover, N. H.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1872...	17.6	14.6	19.0	42.0	56.3	66.2	70.36	69.2	59.1	44.4	32.1	10.2	41.8
1873...	13.3	16.1	23.7	40.4	54.6	67.7	[69.0]	[66.0]	57.0	46.2	24.8	22.1	[41.7]
1874...	22.5	18.3	28.2	33.7	54.7	64.4	69.6	63.7	59.4	47.4	32.5	21.4	43.0
1875...	8.5	11.2	23.2	37.2	54.0	63.6	67.0b	67.8	54.6	43.4	26.3	21.2	39.8
1876...	23.0	19.8	26.0a	39.5	54.0	68.8	[71.0]	68.0b	53.5a	42.1a	36.4	13.2	[42.9]
1877...	10.7	24.6	29.1	46.4	54.9	65.9	67.6	68.1	59.0	45.6	37.1	26.9	44.7
1878...	17.6	19.8	33.5	46.7	55.8	63.1	72.1	70.6	60.0	50.2	34.1	22.9	45.5
1879...	13.5	16.6	26.3	38.5	59.3	64.3	69.1	65.0	56.2	52.4	33.1	22.4	43.1
1880...	25.2	22.6	27.6	44.6a	62.0	66.3	69.4	65.5	60.2	45.0	29.5	17.4	44.6
1881...	9.5	19.3	32.4	37.1	58.9	61.5	69.9	70.4d	62.9	46.8	35.0	30.5	44.5
1882...	17.1	21.8a	29.0	38.7	50.2	65.1	70.0	68.6	58.9	48.9	32.0	20.2	43.4
1883...	13.2a	18.2	20.0	39.6	54.6	68.3	69.2	67.9	56.1	43.5	36.5	20.4	42.3
1884...	13.0	24.6	27.2	42.5	54.3	67.2	66.7	67.8	61.3	47.0	33.6	23.1	44.0
1885...	20.9	10.8	19.0	42.2	54.2	64.8	69.0	69.2	55.7	45.8	34.5	23.5	41.6
1886...	16.1	17.1	29.1	46.8	54.2c	63.4	67.3	64.2	57.0	46.2	34.1	17.5	42.8
1887...	16.7	19.2	23.9	37.4	60.5	64.9	71.8	63.1	53.1	44.8	32.7	22.5	42.6
1888...	6.8	17.2	24.2	37.0	53.4	64.7	66.8	65.0	56.0	40.5	35.1	26.2	41.1
1889...	25.4	15.2	31.6	46.5	59.2	65.4	69.5	63.8	57.8	42.4	36.8	26.5	45.1
1890...	23.0	23.4	27.8	41.5	54.3	63.5	67.5	64.6	57.3	44.6	34.2	11.8	43.0
Mean...	16.5	18.6	26.4	41.0	55.8	65.2	69.1	66.2	57.7	45.6	33.2	21.0	43.0

NOTE.—The temperature observations made prior to 1872 will be found in the February, 1886, Review. The letters of the alphabet denote the number of days missing.

Mean temperature (degrees Fahr.) observed at Kalamazoo, Mich., by Dr. Wm. A. Black, voluntary observer.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1876...	30.8	28.1	28.4	42.9	57.9	67.6	73.3	71.2	58.6	46.2	36.1	16.7	48.2
1877...	18.1	32.9	25.1	46.6	59.3	67.9	71.8	69.9	63.2	52.3	36.1	38.2	48.4
1878...	27.1	29.9	42.2	52.9	55.1	64.6	74.1	71.4	64.1	49.1	38.0	21.5	49.2
1879...	19.4	21.2	34.5	45.5	59.2	65.8	74.0	70.0	55.2	54.5	41.0	26.0	47.2
1880...	30.0	31.5	33.5	46.4	64.2	68.8	72.0	72.0	60.0	47.0	27.0	20.5	48.2
1881...	14.0	20.0	30.0	42.0	66.0	66.0	73.0	73.0	69.0	52.0	37.0	24.0	53.0
1882...	24.0	35.0	35.0	46.0	52.0	65.6	71.2	70.9	64.0	53.8	38.0	24.7	47.5
1883...	15.8	21.4	27.5	47.0	54.5	66.0	71.0	67.5	60.5	47.8	38.5	28.0	45.5
1884...	15.8	25.2	28.0	45.0	57.5	69.5	67.5	66.5	67.5	53.8	36.5	26.0	46.6
1885...	16.8	11.2	22.5	43.8	55.5	65.5	77.8	63.8	60.0	46.9	38.2	28.2	43.4
1886...	20.2	23.5	33.2	51.8	59.8	67.0	70.9	69.7	62.6	52.0	34.3	19.8	47.1
1887...	18.2	25.9	29.1	47.1	65.2	70.0	77.0	69.6	60.7	45.7	36.1	27.4	47.7
1888...	16.5	23.2	27.8	45.7	55.2	68.8	72.4	69.3	59.0	47.4	40.1	31.8	46.4
1889...	28.8	19.7	36.3	46.8	56.5	63.4	70.3	68.7	60.9	56.2	39.0	40.2	48.9
1890...	31.2	34.0	30.2	49.4	55.6	69.0	72.3	67.2	60.4	51.0	43.4	29.1	49.4
Mean...	22.2	25.5	30.9	46.6	58.2	67.0	72.6	69.4	61.7	50.4	37.3	27.5	47.4

Table of miscellaneous meteorological data for April, 1891—Signal Service observations.

Stations and districts.	Elevation above level, feet.	Pressure, in inches.			Temperature of air, in degrees Fahrenheit.								Mean temperature of the dew-point.		Precipitation, in inches.	Departure from normal precipitation.	Total movement, miles.	Prevailing direction.	Wind.			Cloudless days.	Partly cloudy days.	Cloudy days.	Days with rainfall.		Mean temperature data since opening of station.			
		Mean actual.	Mean reduced.	Monthly range.	Monthly mean.	Departure from normal.	Maximum.	Mean maximum.	Minimum.	Mean minimum.	Greatest daily range.	Least daily range.	Mean relative humidity, per cent.	Miles per hour.					Maximum velocity.		8 a. m.				8 p. m.	Length of record, years.	Highest for month.	Year.	Lowest for month.	Year.
																			Date.	Direction.										
New England.																														
Eastport	53	29.83	29.89	1.29	45.6	+2.0	61	45.6	27	33.5	23	2	29.6	71.6	2.23	-1.21	6,455	W.	60	e.	3	7	10	13	11	6	1889	33.8	1874	
Portland	99	29.80	29.91	1.39	43.6	+2.0	76	51.8	26	35.3	31	1	33.0	69.4	1.89	-1.11	5,923	NW.	40	ne.	9	11	10	10	10	5	1878	36.4	1874	
Manchester	247	29.68	29.94	1.47	46.4	+2.0	80	57.4	22	35.4	45	4	30.8	50.6	1.63	-1.56	4,907	NW.	30	ne.	13	9	11	8	10	5	1888	40.4	1888	
Northfield	872	28.99	29.95	1.20	41.3	+2.9	78	51.6	10	31.0	43	4	32.0	68.4	2.41	-0.77	7,217	N.	36	W.	28	6	11	13	10	6	1889	35.0	1888	
Boston	125	29.82	29.96	1.62	45.0	+2.9	78	56.8	27	39.3	33	6	39.7	75.1	2.08	-0.77	9,048	W.	60	ne.	3	11	11	8	7	6	1891	37.0	1874	
Nantucket	14	29.97	29.98	1.46	44.2	+1.5	65	50.1	30	38.3	25	6	36.3	73.8	1.47	-1.82	8,403	W.	52	se.	3	11	11	8	9	5	1889	41.8	1888	
Wood's Holl	22	29.97	29.98	1.46	44.2	+1.5	65	50.1	30	38.3	25	6	36.3	73.8	1.47	-1.82	8,403	W.	52	se.	3	11	11	8	9	5	1889	41.8	1888	
Vineyard Haven	22	29.97	29.98	1.46	44.2	+1.5	65	50.1	30	38.3	25	6	36.3	73.8	1.47	-1.82	8,403	W.	52	se.	3	11	11	8	9	5	1889	41.8	1888	
Block Island	27	29.96	29.99	1.50	44.9	+1.1	67	50.3	30	39.5	23	5	38.0	79.8	1.89	-1.86	12,537	SW.	70	se.	3	14	9	7	7	3	1886	44.5	1888	
Narragansett Pier	22	29.96	29.99	1.50	44.9	+1.1	67	50.3	30	39.5	23	5	38.0	79.8	1.89	-1.86	12,537	SW.	70	se.	3	14	9	7	7	3	1886	44.5	1888	
New Haven	107	29.86	29.98	1.33	45.6	+2.8	79	57.5	24	37.0	39	8	36.1	66.3	3.22	-0.02	6,528	SW.	38	ne.	3	15	7	8	8	5	1886	42.5	1888	
New London	47	29.92	29.97	1.47	47.6	+1.5	75	55.5	27	39.8	31	6	35.7	67.8	3.12	-0.70	6,104	NW.	36	s.	12	10	12	8	11	4	1878	39.9	1874	
Mid. Atlantic States.																														
Albany	85	29.89	29.99	1.14	45.6	+1.9	81	57.9	25	39.3	39	7	38.4	71.8	2.27	-0.36	5,960	NW.	26	NW.	28	9	14	7	11	6	1886	36.6	1874	
New York City	185	29.80	30.00	1.17	52.0	+3.3	80	60.8	26	43.3	31	7	39.6	69.0	2.37	-1.03	8,806	NW.	37	NW.	28	13	11	10	10	4	1881	41.3	1874	
Harrisburg	377	29.61	30.03	0.97	52.8	+3.4	84	62.3	26	43.4	34	4	36.3	56.5	1.70	-2.10	6,102	NW.	52	NW.	28	17	5	8	9	4	1891	50.8	1890	
Philadelphia	117	29.90	30.02	1.00	54.3	+3.4	83	63.4	30	45.2	30	5	37.5	59.2	2.34	-0.52	8,120	NW.	36	s.	11	15	7	8	10	4	1874	42.6	1874	
Atlantic City	53	29.98	30.03	1.07	49.0	+1.9	79	55.5	28	42.5	30	3	40.0	74.9	2.28	-1.03	8,952	SW.	38	n.	25	15	10	6	11	2	1878	42.4	1875	
New Brunswick	76	29.95	30.04	0.96	55.0	+2.9	86	65.0	30	47.1	34	4	38.5	56.8	2.48	-0.79	4,430	NW.	20	SW.	23	15	9	6	10	3	1881	46.9	1874	
Baltimore	112	29.92	30.04	0.92	55.4	+2.6	85	65.7	29	45.2	31	7	40.5	51.5	2.94	-0.22	5,347	NW.	28	NW.	4	17	7	6	8	4	1880	47.6	1874	
Washington City	76	29.95	30.04	0.96	55.0	+2.9	86	65.0	30	47.1	34	4	38.5	56.8	2.48	-0.79	4,430	NW.	20	SW.	23	15	9	6	10	3	1881	46.9	1874	
Cape Henry	685	29.32	30.06	0.77	58.2	+2.4	87	69.0	34	48.9	30	7	40.5	56.8	3.39	+0.10	3,487	NW.	25	NW.	4	16	7	7	7	1	1878	50.6	1874	
Lynchburg	43	30.02	30.06	0.92	58.1	+2.0	84	66.9	33	49.3	31	6	46.8	71.7	1.88	-2.26	6,835	SW.	38	SW.	15	19	5	6	8	3	1871	52.3	1874	
S. Atlantic States.																														
Charlotte	773	29.23	30.05	0.69	61.2	+1.4	85	72.0	26	50.3	30	9	46.4	64.8	2.79	-0.95	4,980	s.	27	SW.	6	17	11	2	5	4	1888	55.7	1881	
Hatteras	9	30.06	30.07	0.88	59.4	+2.1	74	65.2	41	53.7	22	6	49.8	78.6	1.40	-3.61	10,156	SW.	30	ne.	26	15	13	2	10	4	1891	50.4	1881	
Kitty Hawk	9	30.06	30.07	0.88	59.4	+2.1	74	65.2	41	53.7	22	6	49.8	78.6	1.40	-3.61	10,156	SW.	30	ne.	26	15	13	2	10	4	1891	50.4	1881	
Raleigh	388	29.65	30.07	0.76	57.5	+2.7	84	66.4	36	48.6	32	4	49.8	78.6	2.08	-0.95	4,387	s.	36	ne.	16	14	8	8	7	3	1881	50.6	1881	
Southport	78	30.01	30.10	0.78	62.0	+1.9	79	69.0	33	54.9	24	7	52.4	76.2	1.73	-1.35	6,732	s.	34	se.	2	22	5	3	3	3	1881	50.6	1881	
Wilmington	52	30.02	30.10	0.78	62.1	+1.8	82	70.1	35	54.1	25	8	52.4	76.2	1.75	-2.02	5,134	s.	29	W.	6	16	11	3	4	3	1881	50.6	1881	
Charleston	52	30.02	30.07	0.70	64.8	+0.6	86	71.6	38	57.9	22	6	56.7	80.2	2.07	-1.99	4,732	SW.	26	e.	26	19	10	1	6	3	1881	61.4	1891	
Columbia	183	29.90	30.09	0.69	65.6	+1.3	90	77.7	31	53.4	37	10	50.7	66.3	0.71	-3.07	2,268	se.	18	SW.	6	14	12	4	4	3	1881	67.4	1881	
Savannah	87	30.00	30.10	0.68	65.2	+0.9	83	73.9	34	56.4	27	11	55.2	77.0	2.91	-0.91	5,286	se.	24	NW.	3	16	12	2	6	6	1881	69.4	1881	
Jacksonville	43	30.03	30.08	0.63	67.4	+1.4	86	76.6	34	58.2	31	8	55.6	72.4	1.72	-1.40	5,112	e.	30	W.	2	6	12	12	6	5	1881	71.2	1881	
Florida Peninsula.																														
Jupiter	28	30.03	30.06	0.63	70.8	+2.8	88	78.2	39	63.3	29	5	62.4	75.0	0.95	-0.50	7,548	e.	32	SW.	25	7	17	6	8	4	1880	73.2	1880	
Key West	22	30.04	30.06	0.50	73.2	+2.8	88	78.2	39	63.3	29	5	62.4	75.0	0.95	-0.50	7,548	e.	32	SW.	25	7	17	6	8	4	1880	73.2	1880	
Mico	36	30.04	30.06	0.67	70.2	+2.8	88	78.2	39	63.3	29	5	62.4	75.0	0.95	-0.50	7,548	e.	32	SW.	25	7	17	6	8	4	1880	73.2	1880	
Tampa	36	30.04	30.06	0.67	70.2	+2.8	88	78.2	39	63.3	29	5	62.4	75.0	0.95	-0.50	7,548	e.	32	SW.	25	7	17	6	8	4	1880	73.2	1880	
Titusville	44	30.04	30.06	0.66	70.3	+2.8	87	74.9	34	59.7	34	6	62.0	86.0	4.45	-0.80	8,793	e.	38	e.	22	14	8	8	13	3	1881	67.3	1891	
Eastern Gulf States.																														
Atlanta	1,139	28.88	30.06	0.63	65.8	+0.7	86	72.9	28	52.6	32	7	46.0	62.6	1.58	-2.26	5,275	NW.	30	NW.	3	12	11	7	12	3	1882	58.1	1884	
Pensacola	56	30.01	30.07	0.69	66.2	+1.6	84	73.3	34	59.2	20	11	57.8	77.6	1.05	-2.18	5,392	e.	41	e.	10	17	11	2	5	3	1882	64.4	1881	
Auburn	35	30.04	30.06	0.66	65.7	+1.9	84	73.3	34	59.2	20	11	57.8	77.6	1.05	-2.18	5,392	e.	41	e.	10	17	11	2	5	3	1882	64.4	1881	
Mobile	217	29.84	30.07	0.64	65.7	+1.9	84	73.3	34	59.2	20	11	57.8	77.6	1.05	-2.18	5,392	e.	41	e.	10	17	11	2	5	3	1882	64.4	1881	
Montgomery	358	29.70	30.08	0.59	65.8	+0.1	86	74.7	32	57.1	26	8	59.2	87.0	1.65	-3.57	5,481	s.	25	NW.	24	8	18	4	7	4	1881	63.1	1875	
Meridian	358	29.70	30.08	0.59	65.8	+0.1	86	74.7	32	57.1	26	8	59.2	87.0	1.65	-3.57	5,481	s.	25	NW.	24	8	18	4	7	4	1881	63.1	1875	
Vicksburg	222	29.81	30.04	0.58	66.0	+0.6	85	75.5	33	56.4	31	7	52.5	68.9	1.95	-3.35	3,871	SW.	29	n.	15	14	12	4	7	6	1890	63.8	1891	
University	54	30.01	30.07	0.66	68.0	+1.5	84	75.1	41	60.9	20	8	56.2	71.6	0.36	-5.12	6,650	se.	26	NW.	3	11	13	6	2	7	3	1882	65.0	1875
New Orleans	54	30.01	30.07	0.66	68.0	+1.5	84	75.1	41	60.9	20	8	56.2	71.6	0.36	-5.12	6,650	se.	26	NW.	3	11	13	6	2					

Table of miscellaneous meteorological data for April, 1891—Signal Service observations—Continued.

Stations and districts.	Elevation above level, feet.	Pressure, in inches.			Temperature of air, in degrees Fahrenheit.								Precipitation, in inches.		Wind.				Cloudless days.		Partly cloudy days.		Cloudy days.		Days with rainfall.		Mean temperature data since opening of station.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		Mean actual.	Mean reduced.	Monthly range.	Monthly mean.	Departure from normal.	Maximum.	Mean maximum.	Minimum.	Mean minimum.	Greatest daily range.	Least daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal precipitation.	Total movement, miles.	Prevailing direction.	Maximum velocity.		Date.	Cloudless days.	Partly cloudy days.	Cloudy days.	Days with rainfall.	8 a. m. Average cloudiness, tenths.	8 p. m. Average cloudiness, tenths.	Length of record, years.	Highest for month.	Year.	Lowest for month.	Year.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Chart I. Tracks of



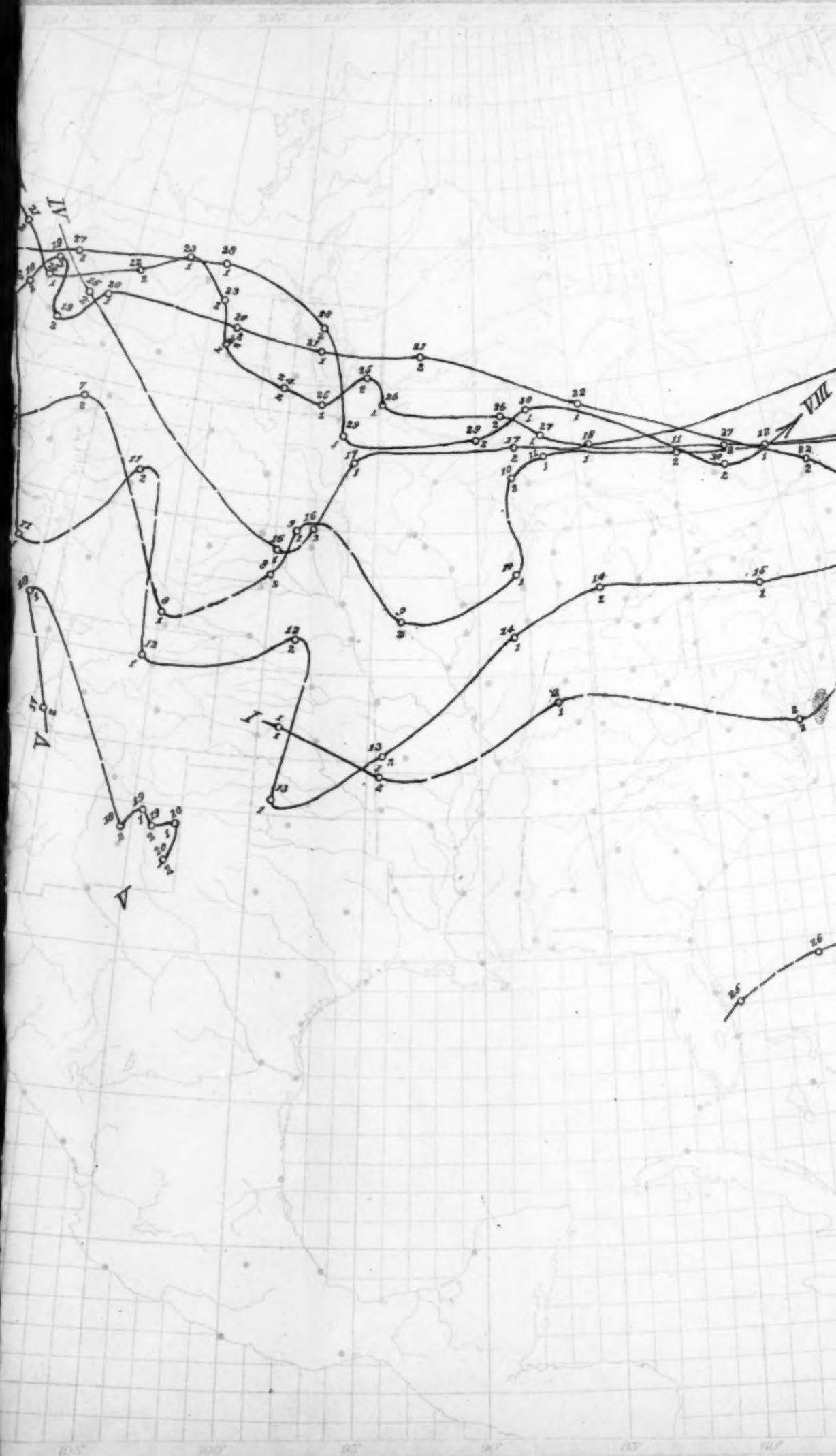
NOTES.

The Roman letters show number and order of areas of low pressure. The figures above the lines show the days of the month, those below (1 and 2) indicate, respectively, the 8 a. m. and 8 p. m., 75th meridian time, observations.

The dotted shading () indicates fog belts.

The ruled shading () indicates the position in which field-ice or icebergs were observed.

Chart I. Tracks of Areas of Low Pressure. April, 1891.



1, 1891.



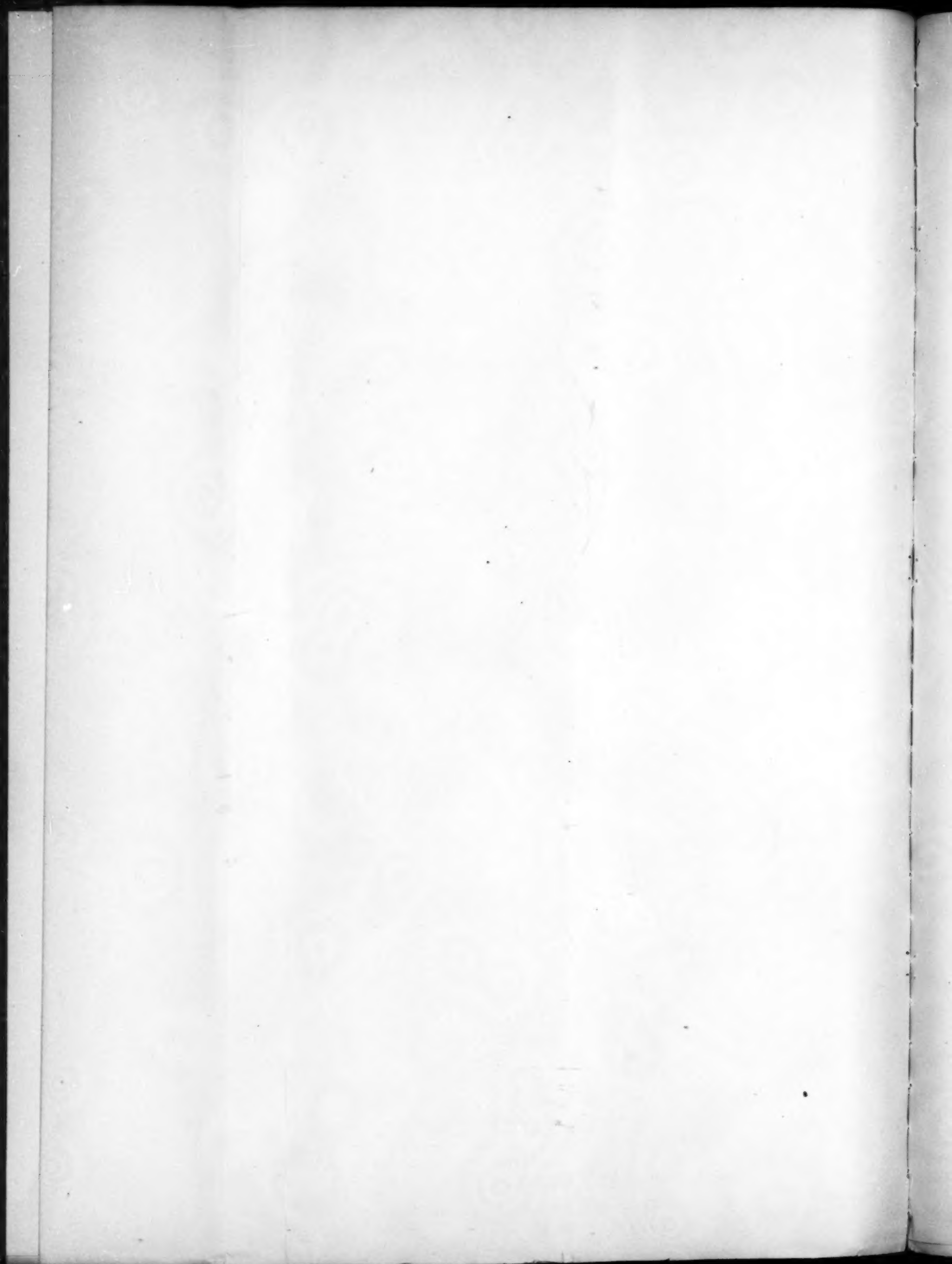


Chart II. Isobars, Isotherms, and Winds. April, 1891,

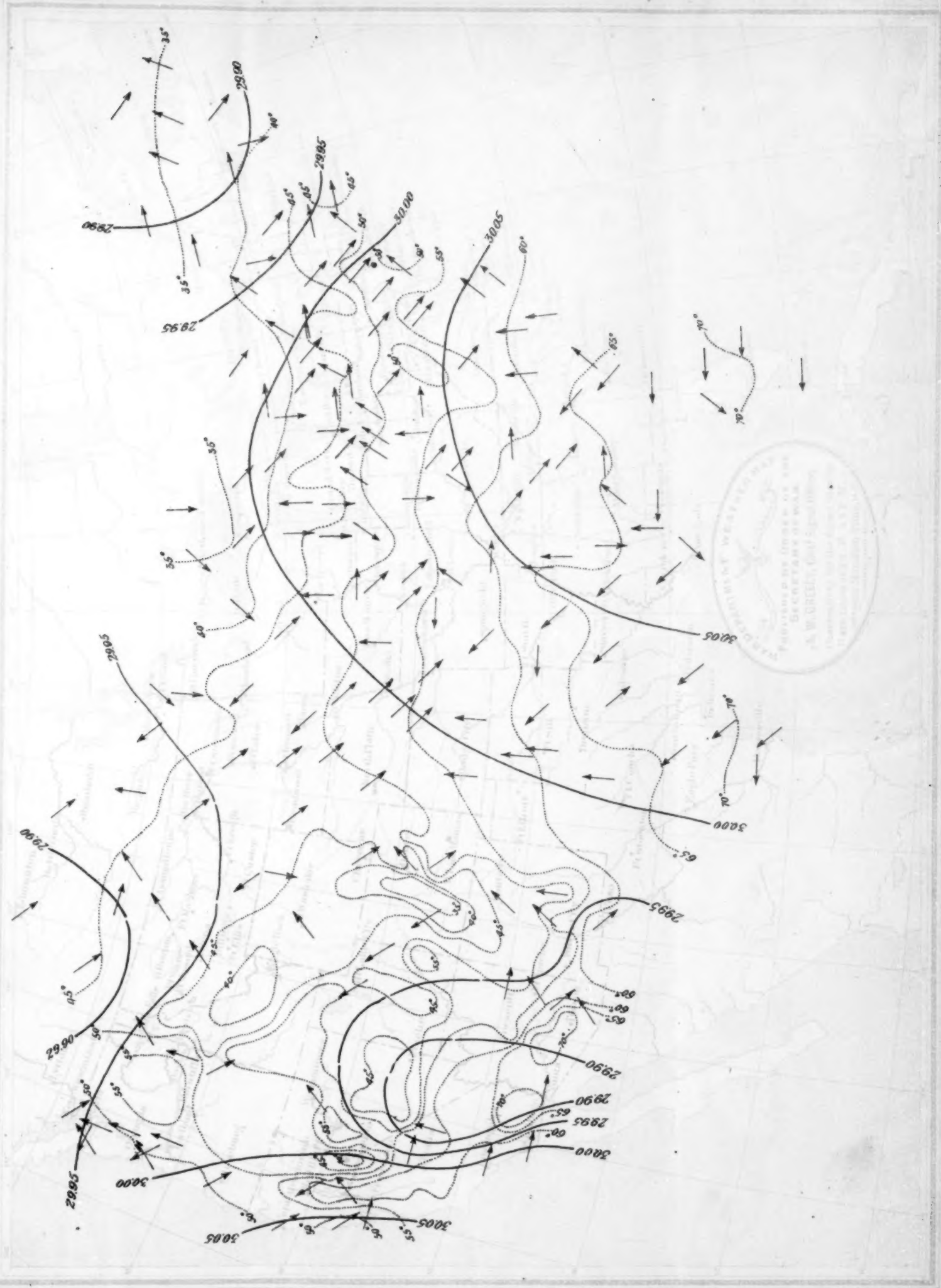


Chart. III, Precipitation, April 1891.

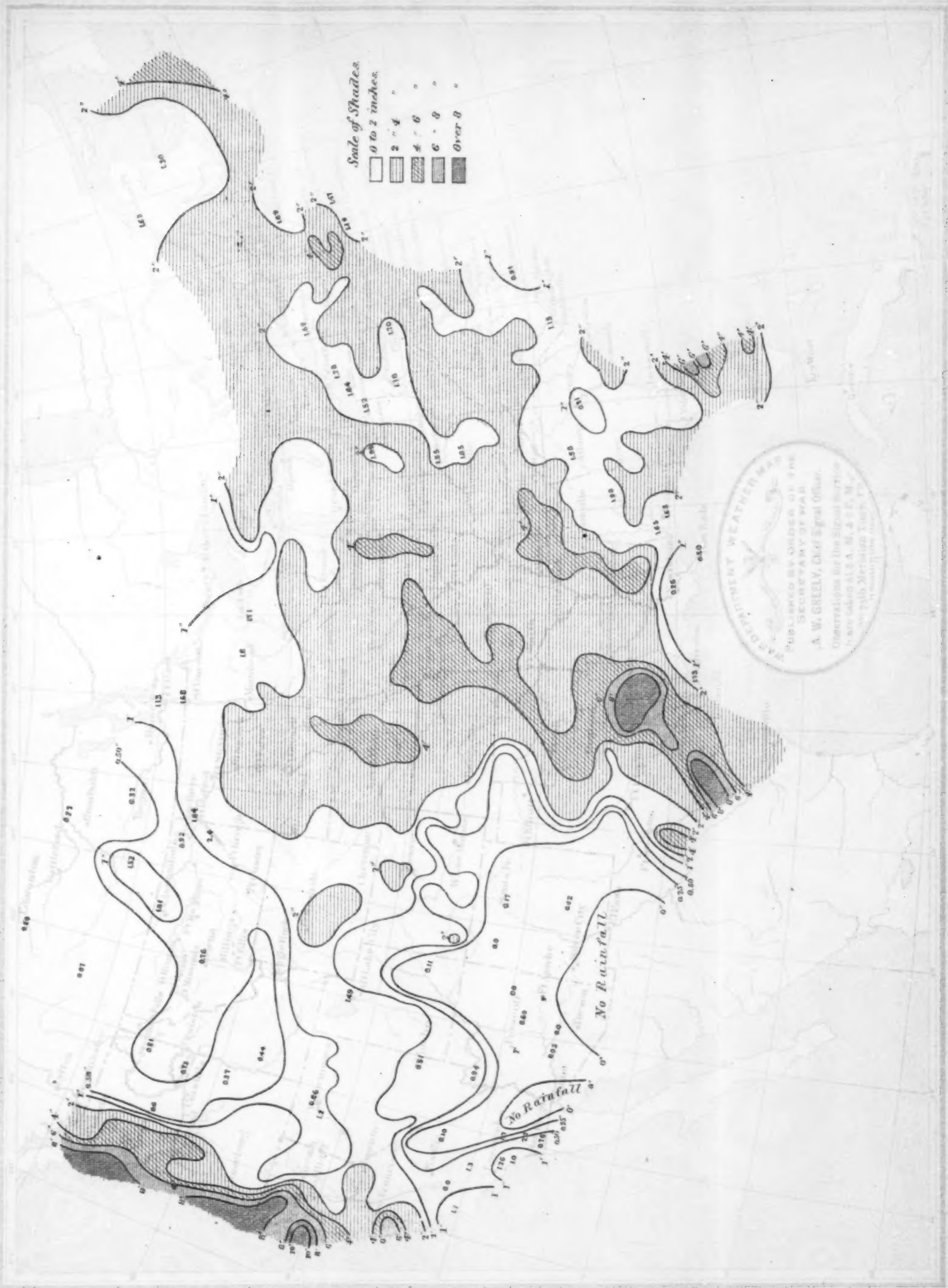


Chart IV. Depth of Snowfall (inches) during April, 1891, and Limits of Freezing Weather.



